Lit. 72

THE EXCURSION

Studying Geography at first hand, as described on pages 9-10, 13-24, 162-170.

ESSENTIALS *of* GEOGRAPHY

A MANUAL *for* TEACHERS

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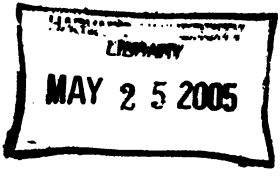

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CHAPTER I

THE NEW GEOGRAPHY

Geography in the Elementary Schools. — For many years geography has held an honored place in our elementary schools. In most of these schools some part of each school day for a period of several years is devoted to its study. During this time the children are expected to learn about their own country in some detail and less fully about other parts of the earth. On the whole, the fact that the subject has held so prominent a place in school work for so long a time may be taken as evidence of a widespread belief that children ought to know something about the world in which they live.

It can hardly be expected that, in these days of educational experiments, the place and value of this subject would go unchallenged. A few years ago some educational authorities became very critical of the amount of time devoted to it. A few even went so far as to suggest that the study of geography be given up or that it be limited to one or two years in the lower grades of the elementary school. For the greater part, however, criticism of geography as now taught in our schools has not been so destructive and sweeping, and has had to do chiefly with the kind and amount of subject matter taught and with the methods of teaching.

Before the World War. — Before the outbreak of the World War it was the universal practice in American schools to spend most of the time given to this subject in a study of our own country. Such time as was given to the rest of the world was chiefly spent in a study of certain important foreign countries. These were usually countries of large population and great wealth as well as countries with which our own had close commercial relations.

To spend most of the time upon the geography of our own country was natural, and, to a degree, commendable. For many years our people had been chiefly concerned with the development of our own resources. Politically we had avoided foreign alliances. Industrially we had catered to home markets, had erected a tariff wall to protect our home manufactures, and had sought in foreign markets only such raw materials as we did not have and such manufactures as we did not make. Commercially we had permitted the overseas carrying trade of the world, including our own, to pass to other nations.

Concerned chiefly with the exploitation of our great natural wealth we failed to notice the extent to which we were becoming dependent upon other countries for materials absolutely necessary in our industries. We raised and manufactured cotton and we mined coal, yet we imported fine cotton goods made from American cotton in British mills and dyestuffs for our textiles and medicines for ourselves made in Germany from our own

coal tar. We paid so little attention to European politics that we knew little or nothing of the territorial ambitions of the various European peoples or of the anxiety that was felt by European statesmen over a struggle for world power and leadership that was felt to be inevitable. Careless of foreign trade, except with such great commercial nations as Great Britain, Germany, and France, we gave little attention to the occasional complaint of American manufacturers that other nations, though fiercely competing with each other in almost every world market, yet combined to shut out American competitors. When we entered the World War, it required the realization of our large dependence upon foreign ships for the transporting of our troops, our munitions, and supplies across the Atlantic, to convince us that our flag ought to go back on the world's seas.

Importance of the Subject now Recognized. — As a result of the war the position of geography has been enormously improved and the press and public have united in urging that the schools should give more time and greater care to the teaching of so important a subject. From the beginning of the war it was recognized that the average American was not well informed concerning the geography of foreign countries. Those who were best informed had acquired their knowledge because of business interests and it came to the majority of our people with something of a shock that a European war, in which at first they felt themselves but little con-

cerned, could so vitally affect their business interests. They have determined to know more of the countries, peoples, and resources of this Europe with which we find ourselves so intimately associated.

Reasons for this Manual. — This new feeling for geography, and the greater opportunity to teach the subject effectively, have led the authors to prepare this manual for teachers. New conditions introduce new points of view. Day by day international questions of the gravest importance are discussed in the magazines and newspapers to which school children have access. A real teacher will wish her pupils to know what countries and what peoples are affected and the probable influence of events upon the welfare of our own country and our own people. Many teachers will feel the need of some help in their teaching as it deals with the new countries which have come into being through the breaking up and rearrangement of certain of the older units of European political geography. To meet the needs in this field the authors have included in the list of references (Chapter XV) books and articles dealing with people and their industries as affected both by physical influences and by the character, training, and genius of the people.

The teacher who is acquainted with even a small part of this literature will change very considerably her teaching of the geography of Europe. She will come to have a new knowledge of its relief and climate. Rivers like the Meuse, Moselle, and Vistula will take on a new meaning. The Marne will be referred to as the river that was

so critical in the struggle between Germany and France, and the Morava Valley will be regarded as important because it is a part of the great through route by which Germany sought to gain an outlet to the Persian Gulf.

Such a teacher will have a new interest in the races and nationalities of Eastern Europe, and their political and racial aspirations. From such a study will come a better knowledge and a greater appreciation of the racial elements of our own composite population.

A new emphasis will be given to the character and distribution of the world's natural resources, and the routes and agencies by which raw materials and manufactured products are exchanged. It is time that in self-centered America the importance of other nations, our dependence upon them, and the meaning of the ocean as the great highway of the world, should be given more adequate expression.

A Good Textbook Needed. — To get the best results, however, the teacher must be well informed and the children must have in their hands for study a textbook that is accurate, adequate, and well balanced. Few teachers will be found who are evenly equipped in all parts of the subject. Herein lies much of the value of the textbook. It offers a well-considered minimum of fact and principle on all important geographic subjects. From it the teacher may start as a center; to it she should return for reference, confirmation, and review, having gathered around it material from many sources to expand and illuminate the text.

The thoughtful teacher will not be mastered by the textbook, nor slavishly follow it. She will use it as her one most important aid. It furnishes an order of study that is logical and adequate but from which she should depart as special occasions demand. The authors of the text for which this manual was prepared have sought to give a well-balanced treatment of the subject, leaving it to the teacher to expand and emphasize in reference to special localities, and to take advantage of interests uppermost at a given time.

The teacher who has fresh and growing knowledge of the field will easily convey to her pupils something of her own insight and enthusiastic interest.

CHAPTER II

THE FIRST WORK IN GEOGRAPHY

Pre-Textbook Work

The formal study of geography with the aid of the textbook as here outlined, usually begins with the fourth school year and continues through the eighth year. During the third school year, however, the study of time, distance, direction, the phenomena of weather, simple facts concerning the home region and the ways of living in other parts of the world, furnish a valuable and necessary introduction to the work of later years.

Time and Direction. — Teach the children how to tell time and give them daily practice until they are able to do so without error. Teach them the days of the week, the months of the year, and the use of the calendar.

Have them study direction, with the schoolhouse as a center, until they are able to give the general direction of the neighboring roads or streets, and of the roads or streets that they use in going between the schoolhouse and their homes. They should also know the common units of distance and learn to measure distances and reduce them to scale.

Simple Weather Observations. — At a fixed time every day have the members of the class make simple

Chart of WEATHER OBSERVATIONS for the School Week.....to.....

Date	Hour	Temperature	Cloudiness	Rainfall	Wind Direction	Strength of Wind
Jan. 3, 1927	9.30 A. M.	Cold	Clear	None	N. W.	Very gentle
Jan. 4, 1927	9.30 A. M.	Cold	Heavy clouds	Snowing	S. E.	Strong

NOTES

For temperature use such terms as: Very cold, Cold, Cool, Temperate, Warm, Hot, Very hot.

For cloudiness use: Clear, Overcast, Light clouds, Heavy clouds, Storm clouds.

For rainfall use: None, Trace, Light rain, Heavy rain, Snowing.

For wind direction use the cardinal and semi-cardinal points; give the direction *from* which the wind blows.

For strength of wind use: Calm, Very gentle, Gentle, Strong, Very strong, Gale.

weather observations and note them in a ruled space on the blackboard, as shown on the opposite page. The teachers should help the children to discover facts for themselves, and the use of technical terms should be avoided. Make use of such problems as: "How long is the school day?" "What part of the time is spent in study? In recitation? In play?" "How does the weather affect the work of different people?" "How does the weather of September differ from that of December? March? June?" "When during the year do we have our long days? Our short days?" "Are the long days or the short days warmer? Why?"

The First Excursions. — A brief study of the home region by means of excursions will prove profitable. Saturday trips and short walks after the close of the school day, as well as formal excursions undertaken during school hours, will arouse interest in the work of the classroom. The consent of parents should first be secured, and all necessary precautions should be taken for the children's safety. Teachers will find helpful suggestions in the chapter on School Journeys and Excursions in a little book by Joan Berenice Reynolds, "The Teaching of Geography in Switzerland and North Italy."

Excursions should be made to places where the work of farmers, gardeners, masons, carpenters, machinists, and other workers may be seen. Other trips should be made to mills and factories, especially those making a large number of similar articles, most or all of which are to be sold outside the community where they are made.

If the children live in the country, excursions should be taken to various fields, and to the orchards, forests, mines, and factories that may be within walking distance; and longer trips, by automobile or other conveyance, should be arranged when possible. On some important road near the schoolhouse, note the different loads on passing wagons and trucks, and discuss their sources and destinations.

If the children live in a city, excursions should be taken to the factory, business, and residential sections and the advantages of each for the use to which it is devoted should be made clear. The relation of the different parts of the city to each other should be pointed out, and some study made of the need and character of transportation routes for the handling of goods and passengers.

Public Utilities and Public Buildings. — The roads, railroads, rivers, and canals, by means of which goods are brought to the city or taken away from it, should be located and studied with reference to the character and volume of the traffic. The more important public buildings in which the children have an interest, such as schools, churches, stores, factories, post office, water supply reservoirs, etc., should be located and their significance made clear. In so far as geographic conditions have exerted an obvious influence on the location and development of a city, of individual industries, or of special areas, attention should be called to the facts and the children helped to make reasonable inferences and

reach correct conclusions. The location of a city on a navigable river or at the head of navigation on a river or bay, and the development of an industry because of available raw materials, or power, are examples.

Using the Textbook

First Lessons Prepared in Class. — At first the textbook in geography is used more or less as a reading book from which the children may learn about the world. The reading and language lessons of the earlier years have given them command of a simple vocabulary and some ability to determine the pronunciation and meaning of unfamiliar words. But for some time the geography lessons should be prepared in class. Teacher and children should work together upon the meaning of words, to find the thought in each sentence, and to determine the leading idea in each paragraph.

Should Deal with Familiar Things. — When these first lessons deal, as they should, with the familiar things of a child's own home, the work is freed from most of its difficulties. This home geography, as it is sometimes called, deals with the ways in which people work and live and is so treated in the Essentials of Geography, First Book. Sections 1-9 show that people must work in order to have food, clothing, and shelter. In the development of these subjects, the observations and experiences of the children should be called into play as the basis of discussion; but the work must be simple and kept at all times within their comprehension.

Food, Clothing, and Shelter. — Class discussion will bring out the fact that nearly every one works in raising, making, or selling things that other people need or in helping other workers in various ways. As study assignments, have the children make a list of the more important industries concerning which they have some knowledge, and follow up in the classroom those that are concerned in the production or preparation of food, clothing, and shelter. Be sure that the pupils appreciate the importance of the work that is done in the home region, especially as that work relates to food and clothing.

Help the children to understand that these three needs are universal and that people in other lands work much as do those in our own country and for the same reasons, *viz.:* that they may have for themselves, and those dependent upon them, food, clothing, and shelter, and in addition some of the pleasures of life.

The food, clothing, and shelter of the inhabitants of a cold country are very different from those of the inhabitants of a hot part of the earth, as are also those of people who, like ourselves, live in the so-called temperate regions, where it is sometimes cold and at other times hot. A brief study of the Eskimos of the far north, and of the dwellers in the rainy and desert regions of the tropics, as contrasted with the life experiences of the children themselves, will help to bring out these differences. Emphasis should be laid upon the influence of differences in temperature and rainfall upon the industries of people.

Industries. — The chief industries by means of which people seek to satisfy their needs and increase their comforts and pleasures are Agriculture, Dairying and Grazing, Lumbering, Quarrying and Mining, Fishing, Manufacturing, and Commerce. All of these are influenced to a greater or less degree by atmospheric conditions and by the character of the government under which they are conducted.

Study Home Industries First. — The industries prominent in the home region should be the first to be studied and when possible they should be studied at first hand. A visit to a farm, a ranch, a lumber camp, or a mine will lend a sense of reality to these industries that no amount of reading or talking about them can give. Nothing else quite takes the place of such excursions when they are properly conducted.

Before leaving the classroom for an excursion it is well to find out what the children already know about the industry to be visited and to determine as definitely as possible what new facts are to be looked for.

Agriculture

Getting Ready for a Trip. — Most children living in a farming community are familiar with the chief agricultural processes. They know that the soil must be plowed, prepared for the seed, planted, and kept free from weeds while the crop is growing. They know also that when the crop is ripe it must be harvested and that ultimately, by means of processes more or less compli-

cated and expensive, it is prepared for use. So much the skillful teacher, by proper questioning, can induce them to tell.

A Visit to a Farm. — A visit should then be made to some near-by farm. Such a trip should be arranged with the farmer in advance, and if possible he should be persuaded to tell the children about the work on the farm, and asked to show them the cultivated fields, pasture lands, wood lots, buildings, stock, and tools.

When the children return to school they should be asked to make a list of the crops grown and of the animals raised on the farm. They may be asked to decide whether the farm that they visited is in a region of small farms where much of the work is done by hand labor, or a region of large farms where there is less hand labor and where big machines are used to do much of the work. They may also be asked to refer to the list of things grown on the farm and to decide whether it is devoted to a single crop or to general agriculture. (Essentials of Geography, First Book, Sec. 10.)

Simple Experiments and Observations. — The children should be given an idea of the importance of moisture and warmth. Let them plant the same kind of seeds in four different boxes. Place two of the boxes in the sunlight where they will be equally warm; water one regularly and give the other no water. In which of these boxes do the plants make the best growth? The other two boxes should be watered alike but one should be kept in a warm place and the other in a cold

place. In which of these two boxes do the plants make the best growth? The fact that plants will grow in a warm house during the winter, that would be killed at once by the cold if they were taken out of doors, shows that some plants need warmth in order to live.

If you teach in a region where winter wheat is grown the children will learn that the grain planted in the fall began to grow before the snow came; that these young plants remained alive under the snow blanket during the winter time and were ready to begin their growth again when the snow melted in the spring. Some plants can endure severe cold and still survive. (Sec. 11.)

Ask the children to perform the experiments mentioned in Sections 13, 14, and 15. Visit if possible a brook with a stony bed and note that the stones have been smoothed and rounded. Walk down stream along the bank of such a brook. Observe the change in the size of the stones that form its bed. What is this change? How is it brought about? If this change continues what must finally happen? What becomes of the fine particles that streams carry along? (Sec. 14.)

Different Agricultural Methods. — Think again of the visit to the farm. Where were the cultivated fields? Why? (Secs. 15 and 17.) On what fields did the crops grow best? Why? How did the farmer try to keep his fields yielding large crops? (Secs. 18 and 19.) The differences in agriculture as carried on in densely settled countries, in village gardens, in trucking regions, and in level countries where great machines may be used,

are brought out in Sections 20, 21, 22, and 23, and local illustrations of these facts should be seized upon. It is by the study of these sections that the children learn under what conditions the same industry is carried on in other parts of the world.

Study of Agriculture by City Children. — From what has been said it is not to be understood that children of urban centers are to be left in ignorance of the contribution that agriculture makes to their comfort and happiness. The approach will be different but the same facts may nevertheless be brought out. In a village or city the study of agriculture may be introduced by a classroom discussion of food as seen on the home table, in the markets or stores, or on the hucksters' wagons. A visit may be made to some large market or store where a variety of agricultural products are offered for sale. Tell the pupils of the importance of the industry to the world's food supply. Help them to understand that articles of food can be raised only where there is the right amount of moisture, the proper temperature, and a fertile soil. They should learn how soils are formed, the relation of streams to their valleys and to the transportation of soils, the kind of region where soils will be coarse and thin, and where they will be fine, deep, and productive.

Dairying and Grazing

Raising Cattle for Food. — A second important food-producing industry is the rearing of cattle for dairy

products and for meat. The study of this industry may be introduced by a classroom discussion of the use of milk, butter, cheese, and meat as food.

In a dairying region the children may refer again to the list of animals kept on the farm that they visited. Why does the farmer keep these animals? Which of them furnish food? Which of them are killed to be eaten? What other useful purpose may any of them serve? If there is a surplus of milk what is done with it? Where does the food for the animals come from? (Sec. 24.)

In an urban center have the children find out from their milkman where he gets the milk that he distributes and, if permission to do so can be obtained, visit the milk station with the children and have the man in charge tell them how the milk supply of a city is brought together and distributed to consumers. Ask him to dwell upon the methods employed to keep it sweet, pure, and wholesome. If possible make a trip to a dairy farm. Make clear the relation of the dairy industry to the thin soils and pasture lands of hilly and mountainous countries. (Secs. 24–25.) Do not, however, lose sight of the fact that important dairy industries are found in level regions and on deep, rich soils, as in Iowa and southern Wisconsin.

Grazing. — Visit a meat market and see the butcher cut up the meat to be sold. Tell the story of the great grazing regions where cattle are raised in large numbers to be fattened and slaughtered for the world's meat supply. The children should learn that there are in our own

and in other countries great plains where only grass can grow and over which great herds of cattle roam. Other animal industries may also be mentioned.

Clothing Materials. — It may be noted in passing that agriculture and grazing furnish a number of the most important raw materials of clothing. The source and use of these materials should be studied if their production is a characteristic industry of the region, or their study may wait until manufacture is taken up and a visit to a cotton, woolen, or silk mill, or to a shoe factory, is possible.

Lumbering

The Lumbering Industry. — In a lumbering region the approach will naturally be through a direct study of the industry as the children see it carried on. Enough time should be given to the study to enable them to understand the relation of this industry to the wood users of the world. Describe by story and picture the sort of buildings constructed by people in regions where there is little or no wood. The snow huts of the northern Eskimos, the tents of desert dwellers, and the adobe, brick, or stone buildings in regions where there were no forests, or where the forests have long since been cut away, are examples. Have the children answer such questions as: "When a new country is covered with forests, why should we expect civilized man to cut down many of the trees?" "When there are only few or small forests why are people more careful of them?" "Why

should not all forests be cut away?" "How are the trees cut into lumber?" (Secs. 27–30.)

Uses of Wood. — In agricultural regions the approach to lumbering (or perhaps quarrying) is through a study of the materials employed in the construction of the farm buildings. In cities or villages also the subject may be introduced through a discussion of the materials used in building and the reasons for their use. This should be followed by excursions to lumber yards, furniture or other wood-working factories or mills, or to buildings in the course of construction where woods of various sorts are being used. In a city the teacher should get a copy of the building code and find out in what parts of the city fireproof construction is required. Take the children on a visit to such a section and help them to discover why this requirement is made. Have the pupils make a collection of different woods and ask each child to find out, in reference to at least one of these, for what uses it is valuable. The lightness and toughness of spruce make it the best of woods for the frames of airplanes. The beautiful grain of the oak, especially when quarter-sawed, makes it desirable for furniture, fine flooring, and interior trim, such as window frames and door frames. White pine is almost without grain, is easily worked by tools into almost any form, and, where the woodwork is to be painted, it makes an ideal trim in house construction. Many other examples will readily occur to the thoughtful teacher. Study Sections 27, 28, and 29.

Quarrying and Mining

Even in regions where there is no quarrying or mining these two industries may be studied in connection with the use of stone in building, coal for heating, and the use of metals obtained from mined ores. Study Sections 31, 32, 33, and 34. As few children have ever visited a quarry or a mine, the story of such a visit will help them to understand how the miners work. (Sec. 35.)

The World's Waters and the Fishing Industry

The study of rivers and river systems; of swamps, lakes, and ponds; of the ocean, its waves, currents, and the shore forms of land and water, may be approached through the fact that from these waters the people of many localities obtain food. This food may be found fresh in some markets, canned, salted, smoked, or dried in others, and from these evidences of an important industry the children may be led by story and picture to an understanding of the importance of the world's waters. Study Sections 36, 37, 38, 39, 40, 41, 42, and 43.

Manufacturing

Trips to Local Mills. — The general facts of manufacturing may be made the subjects of class discussion, including the changing of raw materials into more useful forms and the influences that help to determine the location of factories. Visit mills or factories where the raw materials of local production are going through

some simple process of manufacture. Examples are found in the work done in a flour or grist mill, a butter or cheese factory, a stamping mill, and a cotton gin. Direct the attention of the class to the raw material as received, the process by means of which its form or character is changed, its new form, and the fact that each mill or factory prepares more of these manufactured goods than all of the people of the neighborhood can use. Study Sections 44 and 45. This work paves the way for the study of trade and transportation.

Commerce

Roads. — Direct attention to the roads or streets that are near the schoolhouse. Of what use are they? Why do people travel? Where do the loads that go by the schoolhouse come from? Where are they going? On what kind of road may large loads be easily drawn? If possible, take a trip to some place where a modern so-called "good road" is under construction. Wherever this work is going on, one is usually able to see everything from the scraping away of the surface dirt and the cutting and filling to establish a grade to the final surfacing of the completed roadway. If the actual construction of a good road cannot be seen, it may, at least, be possible to show the difference by local examples between an ordinary unimproved country road and some improved road already completed. (Figs. 73 and 74.) In some states the State Highway Department will furnish pictures showing some stretch of road as it looked before

improvements were begun, while they were under way, and after they were completed.

Vehicles. — Study the vehicle as well as the roadway. The horse-drawn vehicle is being rapidly replaced by the motor-driven machine. Have the children take note of this fact and of the extent to which this change has already taken place in the region where they live. Examples may be found in the use of motor trucks for the transportation of goods between cities, in the mining and lumbering industries, and generally to supplement the railroads where they are hard pressed.

Handling Freight. — A trip to a freight station will furnish material for additional lessons on transportation. Such a trip should be timed so that products of local growth or manufacture may be seen boxed or otherwise prepared for shipment. If the agent in charge will permit it, the children may learn, from the addresses on the packages, where the goods are going. Some members of the class may know about one or more of these places. When this is the case the children will usually be eager to tell about these places and if possible give some idea of the time it ought to take the packages to get to their destinations. Such discussions will help to impress the children with the fact that there is a larger world than most of them know and that, to some extent at least, the people of their own home region are in touch with this larger world and dependent upon it.

If there are any grain elevators and cold-storage or other warehouses near by, see that the children under-

stand why they have been built, and the use made of them.

While visiting the freight station have the children make a list of some of the more important articles of freight that have been received from the larger outside world about which they are learning. Later they should learn why these articles were made elsewhere and sent to them rather than made near their homes.

Airships. — Airships of one kind or another are becoming common and are increasing in size, in cruising range, and in usefulness. Their use during the recent war should be mentioned and the influence of the war upon the development of aircraft explained. In peace they are in use as pleasure vehicles, for carrying mail, and in some instances for private business, especially when great speed is required or when valuable goods must be taken to or from regions otherwise inaccessible.

Even children who have never seen airships can learn something about them through the aid of pictures. And certainly the alert teacher will help the children to a knowledge of this new and promising form of transportation.

If there is an aviation field or landing place for airplanes near the school, the children may be asked to describe it and the "hangars" or shelters in which the airplanes are housed when not in use.

Waterways and Seaports. — The transportation of goods by water should also have attention. Children living near an active river or canal port, or in one of the

great seaports, will enjoy a visit to a freight pier where goods are being loaded or unloaded. Here again shipping tags may be examined and lists of freight, outward or inward bound, may be made. In the seaport cities such lists will undoubtedly include many articles that are going to or coming from foreign countries. The interested teacher will make use of this fact to tell stories about the life and work of people in other lands.

In studying ocean commerce the size of the ships in use, the importance of harbors, and the means adopted to protect ships from the dangers of storms, fogs, and hidden rocks, as well as shore structures and other aids to commerce should receive attention. Note especially the docks and piers provided so that ships may be loaded and unloaded with the least possible delay. How are goods brought to or taken away from the piers or the warehouses? If it is permitted, visit a ship, and let the children see where the freight is stored and how passengers are cared for.

Following the excursions class discussions should be held to clear up all doubtful points and to correct any misunderstandings. The text dealing with the matter under discussion should be studied. (Secs. 46–54.)

The Atmosphere

Influence of Climate upon Industry.— The influence of climate upon all industries justifies a brief treatment of the atmosphere, including a study of winds and rainfall and the weather, even though, in the study of individ-

ual industries, the influence of the climatic factor may have already received attention. By keeping the work simple, using the data obtained through observations for the weather record (p. 8 of this manual), and by simple experiments performed in the schoolroom, the general principles of weather and climate, so necessary in the later work, may be developed.

A little can be taught about the work of the Weather Bureau, the daily weather maps may be shown, and the children be encouraged to look up the forecasts as given in the daily papers. (Secs. 55-60.)

GOVERNMENT

Government and Industry. — In the study of government local illustrations of its importance should be sought. The rules of the home and school may be mentioned and the relation of local, state, and national government to the safety of individuals and the manner of conducting business, should be simply presented. In villages and cities it will be possible to see officers of the law as well as the operation of laws. The police and fire departments, the control of traffic, and the paving of streets are examples.

For the purposes of geography the study of government should be directed almost entirely to the relation of government to industry and to the everyday lives of people, as set forth in Sections 61-65.

CHAPTER III

THE EARTH AS A WHOLE

Studying the Globe

Importance of Globe Study. — Although there is some difference of opinion among teachers as to the time when children should be taught about the earth as a whole, most of them agree that it should come rather early in the course and for that reason in the Essentials of Geography, First Book, this work follows that on How People Work and Live.

Undoubtedly all well-informed children know more or less about people who live in distant places and about other lands than our own. Already in this manual it has been suggested that stories concerning these distant lands and people should under certain circumstances be told to the children. If, however, these children are to understand the relation of life to its environment it is very necessary that they should know something more about the earth as a whole than can be taught through such stories, however interesting and informing they may be. Such essential facts as the form, size, and movements of the earth, the position of the poles and the Equator, direction over the surface of the earth, the distribution of the land and water masses, and the variation

of heat with latitude and with seasons, must each be touched upon. Some attention also must be given to map making and map reading in order that, from the very first, they may understand and make use of map symbols.

First Lessons with the Globe. — As much of this work is rather abstract it is necessary that the teacher be patient and skillful in presenting the facts to be learned. The teacher must be sure of her facts and have at hand for constant use such simple apparatus as may be needed. A good globe is absolutely necessary and the work will be easier if every child has a globe to handle and look at while the lessons are being given.

The first lessons with the globe should make the children familiar with the idea that the earth is a sphere, that its surface is divided into masses of land and water, and that there is much more water than land. They will be interested to know where on the surface of the earth they live and the teacher should point out the position on the globe. Other places concerning which the children have knowledge may also be located. Those who were born, or have visited, in other lands, or those whose parents once lived in other countries, will be delighted to help find the location of the home country as represented on the globe and to trace the route that was taken on the trips between the two continents. Stories of how Columbus and Magellan more than four hundred years ago by their voyages helped people to learn something about the form and size of the earth will prove very

interesting, especially if the voyages of these early navigators are traced on the globe. (Figs. 104 and 105.)

The Size of the Earth. — That the use of the globe may not lead the children to think of the earth as a much smaller body than it really is, problems of distance, as measured by time, should be frequently worked out. For example, "The earth is 25,000 miles in circumference at the Equator; how long will it take a man to walk that distance if he travels at the rate of 30 miles a day?" "How long will it take a train traveling night and day without stop, at the rate of 50 miles an hour, to travel the same distance?" "If an airplane could fly around the earth without stopping, how long would it take to make the trip along the Equator?" In the last example no speed is given because new speed records are being made so frequently. Use the speed made in some famous trip, or in some recent trip.

Day and Night.—The alternation of day and night is a common experience for which the children will be eager to have an explanation. The experiment suggested in Section 69 will help them to understand that it is caused by the rotation of the earth on its axis. All that is necessary is to have the room partly darkened so that when a globe is placed in front of a candle or other artificial light, the part that is turned away from the light will be in shadow. By rotating the globe in front of the light as proper comparisons and explanations are made, the children will get an idea of how day and night are caused on the earth's surface. They will see that

only half of the earth is lighted at one time and they will be able to discover that in some of the lands of which they know, the people are having night when they themselves are having day, and that in their own country it is not the same time in all places at once.

Try by the spinning of a ball to have them understand that the axis of the earth is not at all like the wire on which the globe turns, but that it is an imaginary line the ends of which, at the surface of the earth, are called poles. Explain the position of the Equator in reference to the poles. With the globe in position give the names to the poles, help the children to discover that all places on the earth are south of the North Pole and north of the South Pole. Make it clear that the meridians — lines running directly from pole to pole — are north and south lines. Rotate the globe as the earth rotates and develop the idea of parallels as lines running around the earth and crossing the meridians at right angles. These are east and west lines. On globes on which such lines have been drawn it is easy to find the direction of one place from another. As men have learned to find the position of parallels and meridians on the earth's surface the direction of one place from another may be known.

Direction, Position, and Distance

Finding Direction. — Lessons on ways of finding direction are always interesting and the experiments suggested in the text should, if possible, be worked out with the children. Talk about the direction of other public

buildings from the schoolhouse, of the directions that the children take on their way to and from school and of the direction that one would need to travel in order to reach the nearest large city, mine, mountain peak, or other point of interest. Have the children look out of the window on a windy day and tell the direction of the wind from the way bushes and small trees are bending.

Latitude and Longitude. — Teach meridians as lines of longitude and parallels as lines of latitude. Have the children study carefully a globe on which these lines are shown and numbered. Find zero of each, and see how far east or west from the zero meridian one can go, and how far north and south of the zero parallel one can go. Name a given parallel and ask them to locate it, then name a given meridian and ask them to find where the two cross. Repeat this exercise until the children are able to do it quickly and without hesitation. A dot placed upon a globe may now be located and the latitude of the home city or village determined with approximate accuracy.

Continents and Oceans. — As soon as the children are able to locate places on the globe and to determine the direction and approximately the distance of one region from another, they should be drilled, with the globe in hand if possible, upon the names and location of the several continents and oceans. The continents should be studied as to their relative size, and the location of each one in relation to all the others and in reference to its bordering waters should also be considered.

The division of the great water surface of the earth into the several oceans should be pointed out and the approximate boundaries should be given. In connection with this study of the globe have the children turn it so as to show the continents and oceans as in Figures 104, 105, 110, 111, 117, 118, and 119 in the Essentials of Geography, First Book, and when so placed identify on the globe the continents and oceans as named in the several figures of the text. Imaginary journeys from one continent to another, giving the directions taken and the ocean or oceans crossed, will prove interesting.

Foreign Lands and People. — In connection with their first lessons in geography the children have undoubtedly been told stories of other lands and people, and many reading books contain stories from which they learn of the customs and ways of living in different parts of the earth. These stories may now be recalled and used as a foundation upon which to base the geographical facts of this section. They will know of the severe cold of the Arctic region and of the Eskimos' struggle for food and clothing. (Sec. 7.) The story of the Arab will give them a picture of life in tropical deserts. (Sec. 8.) Other stories of life in civilized countries where the people live and dress in ways somewhat different from those to which we have been accustomed may also be used. By calling attention to contrasts in the living conditions and in the customs of peoples in different parts of the world the general statements of the text may be illustrated.

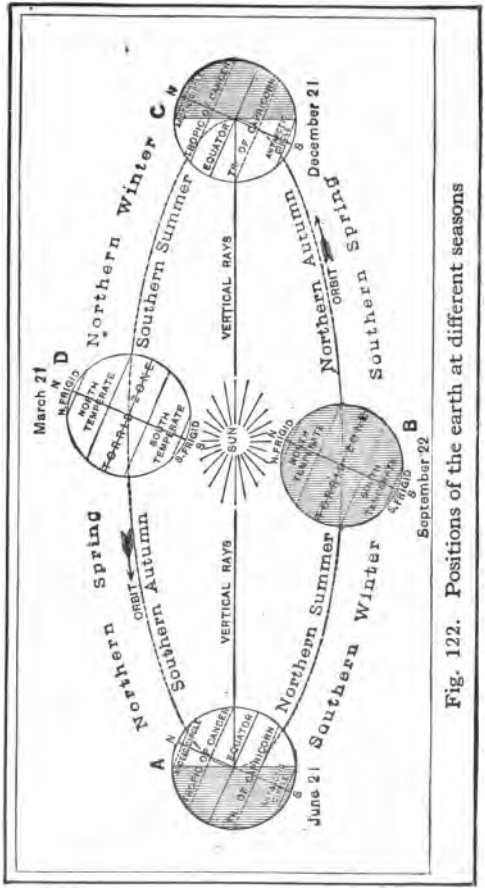

Fig. 122. Positions of the earth at different seasons

The Seasons

Preliminary Study. — Through weather observations the children have learned to recognize the sun as the source of heat; have become familiar with the variations in temperature in a single day and from day to day; and have learned to associate the period of greatest heat with the time of the year when the days are long and when the sun is highest in the sky at noontime. These observations should help the children to understand the relation between the temperature of a region and the angle at which the sun's rays reach the earth. (Essentials of Geography, First Book, Sec. 75.)

The Earth's Yearly Journey; Zones. — The children have already learned about the rotation of the earth on its axis and the influence of this upon the alternation of light and dark periods. They are now to learn that the earth not only turns on an axis but that it also makes a yearly journey around the sun. Illustrate this by using a candle to represent the sun and a small globe to represent the earth. Before giving this lesson, the teacher should study carefully Figure 122 on page 63, Essentials of Geography, First Book (reproduced for convenience on the opposite page). In showing the movement of the earth about the sun, she should be sure to keep the globe moving in the proper direction and the axis in its correct position, *i.e.*, inclined 23½ degrees from a perpendicular to the plane of the orbit and at all times parallel to former positions. Use the term ***revolution***,

see that the children understand its meaning and know how long it takes to complete the movement.

Have the children study Figure 122 in the First Book. See if anyone can hold the globe so that it will have the same relation to the candle as A in this illustration has to the sun. This is the position of the earth in relation to the sun on June 21. At this time the North Pole is turned toward the sun. Have one of the children rotate the globe while the others watch. Help them to notice that at this time: 1. All of the earth north of the Arctic Circle is in sunlight during the full period of rotation or 24 hours, but the sun's rays are very slanting. 2. All of the earth south of the Antarctic Circle is in darkness during a full period of rotation. 3. The direct rays of the sun are north of the Equator.

Change the position of the globe in reference to the candle into the position C, Fig. 122, and show that on December 21 the region within the Antarctic Circle will be light for a full rotation period, while that within the Arctic Circle will be continuously in darkness for the same length of time. The vertical rays of the sun will reach 23½ degrees south of the Equator.

The names of the zones may now be given. This work should be reviewed frequently until the children can place globe and candle in their proper positions to represent the relation of the earth and sun on June 21, September 22, December 21, and March 21.

Day and Night Unequal. — With these relations thoroughly understood, it should be possible to show

why days and nights are not always equal in length except at the Equator. With the globe and candle placed so as to illustrate the positions of the earth and sun on March 21 (D, Fig. 122), have the pupils notice that the vertical rays of the sun are on the Equator and that the sunlight reaches halfway around the earth at the Equator and from pole to pole. Under such conditions any place on earth will be in light during one half and in darkness during the other half of the period of rotation. Every place on earth would have day and night of equal length. On September 22 the same thing would be true. If, however, the globe is moved slowly in its orbit around the candle from its March 21st to its September 22nd position, the Northern Hemisphere will be seen to have more of its surface lighted than the Southern Hemisphere. In consequence, any place in the Northern Hemisphere will be in the light more than half of the 24-hour period of rotation and will have a longer day than night. Those places near the poles will have longer days than those near the Equator, and for any one place in the Northern Hemisphere the longest day will be on June 21. During the remainder of the journey (B to C to D, Fig. 122) the globe and candle will show under what conditions the Southern Hemisphere has its long days.

Heat Belts. — Care in teaching Section 75 should make it clear to the children that the boundaries of the zones are fixed by the way in which different parts of the earth are lighted at different periods during the year. Section

76 emphasizes the fact that the heat belts afford much better guides to the climate of a region than do the zones. A study of Figure 124 will show how irregular are the boundaries of the climatic regions and that they correspond only in a very general way with the light belts shown in Figure 123. Children who know that in the summer many people go to either mountains or seashore because in these places it is usually cooler than it is in lowlands at a distance from large water bodies, will understand, in part at least, some of the influences that help to make the heat belts so irregular. To them it will be significant that in each continent there are highlands as well as lowlands and that all continents are bordered by great oceans. Finding these climatic differences in the several continents, they will be eager to learn how they affect the industries of the people and the character and variety of their products. It is to work of this sort that the greater part of the text is devoted.

Maps

As geography deals largely with the distribution of things and as distribution can best be shown on maps, it is of the utmost importance that children should be thoroughly and accurately grounded in their use and construction. Before taking up the study of the several continents and countries, therefore, it seems wise at this time to introduce the study of maps and give some little drill in their construction.

How Maps are Made. — The map is in many ways the central and most important material for study. Maps put things in relation to each other over the area of a city, a county, a state, a country, a continent, or the whole world, or over some part of a city, a county, etc.

In Section 78 of the Essentials of Geography, First Book, the idea is brought out that things may be represented by drawings and that these drawings should keep as far as possible the shape of the objects shown. Also that if one object in the drawing is made larger or smaller than it really is, all other objects should be made larger or smaller in the same proportion. The three drawings of the one-room country schoolhouse shown on page 67 are all of the same building, but in the largest an inch of the drawing represents nine feet in the building, in the next smaller an inch represents twelve feet, and in the smallest an inch represents eighteen feet. Have the children measure each of these three drawings and see that they all represent a building of exactly the same size. Call their attention to the fact that in the smaller drawings the desks, seats, teacher's platform, etc., are also smaller, *i. e.*, *they are drawn in the same scale* as the building itself. As soon as the idea that drawings may be made to show the relative size and distribution of things in any chosen area is perfectly clear, the children should be given practice in measuring and drawing to scale the tops of their desks, the teacher's platform with its desk and chair, their own schoolroom, the school yard with its building and with adjoining streets. In

this work it will be necessary to agree upon a scale for each drawing and to decide from time to time how such things as windows, doors, trees, etc., are to be shown, *i.e.*, the symbols to be used.

Scale. — Maps showing the home city or village, the home county, and the home state should then be studied. The scale of the map should be found, distances measured, and directions pointed out. The fact that the land masses shown on the schoolroom globes are maps of the continents should be made clear and the children may then be encouraged to turn to the maps in their text for study.

Drill upon the idea of scale and its use in measuring distances on maps.

In the Essentials of Geography, First Book, the map of the United States fills two pages in Figures 143, 146, and 150, it occupies only one page in Figure 144, and less than a third of a page in Figure 147. By using the scale the children will find, however, that the size of the country is always correctly shown no matter how large or small the map may be.

In Figure 157, New England States, note the number of miles to the inch and do the same on Figure 193, South Atlantic States. Then measure and compare as to size Maine and Georgia and after drawing conclusions as to the comparative size of the two states, consult the table on page 260. Make similar comparison on the state group maps and in the table. Do the same thing with New York and Texas, or with the home

state and any state in a state group having a different scale. Bring out the necessity of having small scale maps on a book page and the fact that even the page of the textbook will hold a fairly large scale map of a small area, as is the case with the map of the city of New York and vicinity, Figure 184, or the map of Porto Rico, Figure 255.

Map Symbols. — Drill upon the symbols used in maps to show rivers, railroads, cities, boundaries, highlands and lowlands, etc., until the children are thoroughly familiar with the use and meaning of such symbols and can read the maps as easily as they might read the words in which such facts could be stated. As the children take up the detailed study of the continents and countries they should receive further instruction in the interpretation of maps to which reference will be made in the next chapter.

CHAPTER IV

OUR CONTINENT AND OUR COUNTRY

North America

After the work outlined in the earlier chapters of this manual has been completed, the attention of the children should be directed to the study of the countries and the people of the world.

In this new work it is natural that by far the greater part of the time should be devoted to our own country and our own people. As it is the first study of the kind undertaken the natural approach to the study of the United States is through a brief survey of the position, size, and physical characteristics of the continent of which it forms so large a part.

Continent and Bordering Waters. — The facts to be stressed in such a preliminary study of the continent should be the features and phenomena that influence, in a large way, the adjustment of its inhabitants to their environment. Constant use should be made of a globe and of the maps in the textbook. Have the children point out the position of the continent in reference to the Equator and the North Pole and name the bordering waters. Have them find the continents that lie beyond these bordering waters and the general direction that

must be followed in crossing the ocean to reach these neighboring continents. That they may have some idea of the size of this great land mass, have them measure along parallels and meridians its breadth and length, using the scale of miles, Figure 135. See if they can calculate the length of the journey and the average distance walked each day by the man spoken of in Section 85. (The route was from Los Angeles to New York, and the distance walked was 3500 miles.) In this work of measuring and calculating distances make constant use of the names of the larger political divisions and note their relative positions.

Position of United States. — The children should take particular note of the central position of our own country. See if they can mention any advantages that our people enjoy because of this central position. Have them review Section 76, especially the part that refers to our own continent. Have them trace on the globe or a large wall map the several temperature areas (Climatic Regions) shown in Figure 124. Making use of Figure 138, have them find in which of these regions the population of the continent is most dense. If this work is carefully done and the accompanying text is carefully studied, the children will easily reach such simple judgments as: "People live most comfortably where it is neither very cold nor very hot." "In very cold countries most of the people are engaged in hunting or fishing." "In hot countries where plants can grow all of the time, it is difficult to keep the fields cleared so

that crops may be grown." "In very hot countries people are able to work only during the cooler hours of the day." "If valuable minerals are found in cold or hot regions unfavorably located for other industries, mines may nevertheless be opened and operated."

In saying that the children should be able from their study to reach such conclusions as those given it is not intended that the teacher should herself express these conclusions for the children or insist that they express them in the exact words that the authors have used. The children should, however, with some help from the teacher, be able, at the close of any individual lesson or series of lessons, to express clearly in short, definite statements the conclusions reached. Such conclusions are of the same nature as the italicized summaries in the first eighty-two sections of the Essentials of Geography, First Book. These summaries are included in the text not as facts to be committed to memory, but as definite statements of conclusions reached on the basis of what has been learned.

Highlands and Lowlands. — Have the children turn to Figures 132 and 133. These they should study until they can locate and characterize the highlands and lowlands of the continent. Such a characterization should include a comparison of the highlands and lowlands as to total area and as to the parts of the continent occupied by each. A comparison of the two major highlands should also be made as to area, length, width, height, trend, and position. In connection with this study have

the children review what is said in Section 25, Essentials of Geography, First Book, concerning the influence of elevation upon temperature. Have them again turn to Figure 138 and see if they can answer such questions as: "Why is western United States less densely populated than eastern United States?" "Why is central Mexico much cooler than the coastal regions?" "Why are there more people in central Mexico than along the coasts?"

Rainfall and Drainage. — As relief influences rainfall, rainfall, industry, and industry the distribution of population, any attempt to account for the distribution of population should include a brief study of the relief, rainfall, and drainage of the continent. This is, of course, not merely that the children may know about the surface features, rainfall, and drainage of North America. It is, rather, that they may, using such facts as they learned in earlier sections (56–59), understand and appreciate certain relations. They should, in short, be able to discover for themselves that in a continent of such form, size, position, and relief, where the prevailing winds are as shown in Figure 139, it is to be expected that the rainfall will be as indicated in Figure 140 and the drainage as represented in Figure 134. The combined study of text and maps will help the children to understand the connection between the light or heavy rains of certain parts of the continent and the sparse population of the same regions.

Emphasis should be placed upon the fact that rivers and river valleys are in many instances important high-

ways of trade and travel. Because of this the text, even in this first brief study of the rivers and lakes of North America, mentions their usefulness for such purposes. Point may be given to this work by the study of local examples, if such exist.

Population and Industries. — In all of this work the teacher should keep constantly in mind the fact that *the most vital aspect of geography is the study of people and their industries and that the ultimate expression is the distribution of population.* It has already been pointed out that among the forces and conditions that help to influence this distribution there are certain ones in the physical realm that are relatively simple and direct in action. A given region may, for example, be too cold, too hot, too wet, or too dry to permit any large number of people to find employment within its limits. Mountains may be so high as to act as effective trade barriers between neighboring peoples or they may lie across the course of prevailing winds and so affect the distribution of rain that they will separate lands of ample rainfall, abundant vegetation, cultivated fields, and a dense population from lands in which exactly opposite conditions prevail. It is to such relations as these that the work so far outlined has been confined. There has, however, been no attempt to teach everything that such relations imply, or to study in detail the forces that control the movements of the atmosphere, the distribution of rainfall, the localization of life forms, or the exploitation of natural resources. Much of this must come later.

Countries and Boundaries. — Upon turning attention to the study of our country, and of the political divisions into which the continent has been separated, a somewhat different point of view is introduced. The children become concerned with the fact that, whatever the cause may be, people do not all speak the same language or think the same about the form of government under which they prefer to live. As a consequence there has been a separation of people into national groups and the lands of the earth have been divided among them. It is apparent that neighboring peoples of different nationalities, aspirations, and beliefs can hope to live in peace only when the boundaries separating one land from the other have been agreed upon, accurately surveyed, and clearly marked, and when boundaries so determined are respected by both governments. It may happen, of course, in newly settled or sparsely settled countries that such accuracy is unnecessary and boundaries may be given in terms of natural features, as along a river, or following the crest of a range of mountains. As soon as the land is occupied, however, the exact boundary must be determined. When Alaska was purchased by the United States, the boundary between it and Canada was so loosely defined that a joint commission had to be appointed later to fix its location. Many years before, the boundary line that winds in and out among the islands of the St. Lawrence River and through the Great Lakes and connecting rivers, had been carefully surveyed and marked on maps.

The United States

Boundaries of United States. — Have the children trace and describe the boundaries of the United States (Fig. 146). They should notice which are physical, as the oceans; which follow physical lines, as lakes and rivers; and which are purely arbitrary. To make the need of accuracy in boundaries still more clear, use such illustrations as the imposition of tariffs and taxes, the exercise of the franchise, and the control of immigration.

Section 91 may therefore be made the basis for lessons that include class discussions, map study, assigned readings, and reports.

Distribution of Population. — Within a given country the distribution of population depends in part upon such physical facts as have already been mentioned, and in part upon other considerations just as easily presented. These include: (1) The distribution of natural resources and the industrial regions based upon them. (2) The extent to which the natural resources have been utilized and the demand for the products that has resulted. (3) The means of transportation that have been created so that raw materials and manufactured goods may be moved from centers of production to their respective markets. In relatively new countries, including our own, it is also necessary to consider the length of time the country has been occupied and the racial elements that have entered into its population.

Agriculture, Grazing, and Forests. — In studying Section 92 constant use should be made of the maps provided in the text to illustrate this section. The children should study Figure 144 until they can pick out the parts of the United States in which most of the people are engaged in the fundamental industries treated in earlier sections of the Essentials of Geography, First Book (Secs. 10–46). A comparison of the crop-growing regions shown in Figure 144 with the rainfall map, Figure 145, will show that the most important crops are grown and the largest forests are found in regions of moderate or heavy rainfall. The children should take note that, for the greater part, these regions are east of the 100th meridian or in the far west. Cattle and sheep raising will, of course, be found in regions of considerable rainfall where they are carried on in connection with the production of certain important crops. The same animal industries will also be found where the rainfall, although insufficient for the growth of cultivated crops, is sufficient for the growth of grass.

The children should next compare the two maps already studied with Figure 146. They will see that most of the country west of the 100th meridian is high and rough. Agriculture will be confined to river valleys or to level lands favorably located for irrigation, while forests will be found on the windward slopes of mountains in regions of proper temperature and sufficient rainfall.

Mineral Regions. — Further study of Figure 144 will show that in many places in this mountainous region

valuable mineral deposits have been found. Have the children find the answers to such problems as: "What minerals have been found in western United States?" "Which of these are precious metals?" "To what industries might the exploitation of such mineral deposits lead?" Have them turn their attention to the eastern part of our country for study of the mineral deposits. They should note that the precious metals are not among the important products here, but that there are large deposits of such minerals as coal and iron, both of which are required in enormous quantities in our present-day industrial life. Using Figure 146, have the children locate the Appalachian Mountains, the Adirondack Mountains, and the Ozark Plateau. Have them find the same regions on Figure 144 and draw conclusions as to the probable industries.

Manufacturing and Railroads. — As soon as the children are reasonably familiar with the chief raw materials as shown in Figure 144, they should be asked how these raw materials may be made of service to mankind and how they may be made available to people living at a distance from the region of production.

To find an answer to the first of these questions have them again turn to Figure 144 and find the regions where manufacturing is carried on and where the chief manufacturing cities are located. In each of these regions certain raw materials of local production are available and these are utilized in conjunction with others brought from more or less distant parts of the world. (Secs. 44–

45.) Skillful workers gathered together in factories and working with wonderful machines transform these materials into objects of use and beauty. Greater definiteness in regard to the manufactures of any particular region or city may well wait until the resources and industries of different parts of the country are taken up for more detailed study.

To find the answer to the second question they should review Sections 46–54 inclusive, and study Figure 147, showing the railroads of the United States. The work already done should enable the children to answer such questions as: "Why do the people of our country need railroads?" "Why are there so many more railroads east of the 100th meridian than are needed to the west of it?" "Why are more railroads needed to serve manufacturing regions and cities than are needed in purely agricultural districts?" "Why are there so few railroads in northern New York? In southern Missouri and northern Arkansas?"

States and State Groups. — In this study of the industrial regions of the United States, the children should make constant use of the political map of the United States (Fig. 150), to locate the state or states within whose borders particular resources or industries have been developed. This use of the political map will make the children familiar with the idea that our country is divided into a number of states each of which, like the country itself, is set off from all others by definite boundaries. As the study of the country as a whole is

to be followed by the study of certain state groups, enough of the early history of the country should be given to account for the development of the state idea.

Discovery and Early Settlement. — Remind the children of the voyage of Columbus (Sec. 68). Call their attention to the fact that the first explorers found the country already occupied by native people to whom they gave the name of Indians. Note the means adopted by these Indians to provide themselves with the necessities of life. Contrast their food, clothing, and shelter with those to which the Europeans of that day were accustomed. Show that the newcomers, because they had led a more settled life, established permanent settlements, cleared the land and brought it under cultivation, and claimed it for themselves. Their claims and their mode of life soon brought them into conflict with the Indians. Show that the early settlers from Europe came from several different countries; that they established settlements in the narrow strip of land along the Atlantic coast east of the Appalachian Mountains, but at widely separated points; and that their penetration into the interior was opposed by the Indian tribes, of whom they had made enemies. This leads up to the statement in the text that these settlements were organized into *colonies* and that all were ultimately brought under the control of the British Government. It was from this government that thirteen of the colonies won their independence and, later, as independent *states*, united to form the country that we call our own.

Growth in Population and Area. — Since these early days people from all parts of the world have found homes in this new land. What races are now represented in our population? Which race predominates? What has become of the Indians?

By contrasting the area claimed by the original thirteen states and the area of the present United States, the children will gain some idea of our expansion across the continent. On the map of North America already studied, the most important possessions of the United States may be shown. The more distant islands may be located on a globe. Have the pupils count the states and contrast the size of the older states in the east with the newer ones in the west. Compare the population of the eastern states with that of the western, using Table 2, page 260. In which of these is the population most dense? Why?

For a further and more detailed study of our country, it is divided into state groups. As a preparation for this study of state groups have the children compare Figure 156 with Figure 150, so that they may become familiar with the names of the groups, their position, and the names of the states of which each group is composed.

CHAPTER V

THE UNITED STATES BY STATE GROUPS

Order of Study.—In Essentials of Geography there are seven state groups into which the United States is divided for detailed study. The order of their presentation may be varied from that adopted in the text whenever and to whatever extent the teacher finds necessary. The order adopted is not, however, a mere random choice. It is based upon the fact that the groups first presented include the original thirteen colonies and were therefore the first to be settled. Several of them are much more densely populated than the other states of the Union and in most of them there is a settled industrial life based, in part, upon the utilization of such raw materials as the region itself furnishes and in part upon raw materials and semi-manufactured goods imported from a distance. Here, therefore, are tradition, settled order, vast business enterprises, wealth, and world trade.

It is, of course, quite possible to teach the children something about the industries of our people without reference to any particular grouping of states. Indeed, that is exactly what was done in teaching the United States as a whole. Even in that work, however, it was suggested that enough use be made of Figure 150 to familiarize the children with the names and location

of the states whose major industries are shown in Figure 144. This teaching of the names and locations of states, and later of foreign countries, needs no justification. Every intelligent person who would keep in touch with the world's affairs has daily need of such information. It is the business of the teacher of geography to see that children get it in their early years.

The Census. — Every ten years the United States numbers its people and takes stock of its resources and industries. This has been going on since 1790, and during that time it has been found that there are certain states in which the resources and industries are so nearly uniform in character and bear such a relation to each other that they may reasonably be grouped together and treated as a single unit. The state groups adopted by the United States Bureau of the Census are the groups presented in the Essentials of Geography.

In taking up a state group for study it should be pointed out to the children that the group is a part of the United States, and the position of the particular group should be found on the larger map (Fig. 150). The children should also be drilled in the use of the map scale and the quick and accurate measurement of distances. The use of this scale should be continued until they understand that however much two maps of a given region may vary in size there will always be a corresponding variation in the map scale, and that on maps of the same region the indicated distances between common points will always be equal.

The New England States

Maps of State Groups. — The first of the state groups taken up for detailed study is the region known as New England. For this and for other state groups the maps used show both physical and political features and are in every respect the finest and most satisfactory maps ever used in an American school textbook in geography. In them the physical features are carried to the margin of the map, showing that the land and water areas are continuous. Relief is shown in color in accordance with the scale of elevations printed on each map. The colors used are soft and harmonious and are readily distinguished from each other. In regions of considerable elevation, districts of a hilly or mountainous character are shaded to indicate that fact, and state boundaries are shown by narrow purple lines that do not in any way obscure the physical features.

The study of a state group should therefore begin with the study of the map representing that group. After its position as a part of the United States has been determined, measurements similar to those suggested in Section 96, Essentials of Geography, First Book, should be made. The position of highlands and lowlands should be noted and the attention of the children directed to the fact that these are frequently very extensive and are seldom wholly included within state boundaries. Illustrations showing the character of the relief of the country, such as Figures 158, 176, 183, 194 and other

similar ones throughout the book, should be studied in connection with the maps that indicate its character. It should be borne in mind, however, that this study of relief is not merely that the children may know the physical features of a particular region. Relief is studied, rather, because the physical features of a region so frequently exert a considerable influence upon its accessibility, human occupation, and industrial exploitation, and this influence should be kept in mind.

It should next be pointed out that New England is a region of moderate or moderately heavy rains (Fig. 145), and should therefore have numerous rivers, of which those in hilly or mountainous districts will probably be interrupted by falls or rapids (Fig. 157). This group is on the northern edge of the temperate and the southern edge of the cold temperate climatic regions (Fig. 124) and has therefore warm to cool summers and cold winters. It has a population ranging from little to very dense (Fig. 138). A clearer understanding of the distribution of the population may be gathered from Figure 157. Here it will be noticed that nearly all of the cities whose names and positions are given are on the coastal lowlands or in stream or lake valleys. The teacher should call attention to the fact that the larger cities are shown by larger and heavier type.

Industries of New England. — Have the children turn again to Figure 144. This shows that lowland New England is a manufacturing region; that agriculture, cattle raising, lumbering, and fishing are among the other indus-

tries carried on there; and that it is a region of limited mineral wealth. On a map of so small a scale it is obviously impossible to indicate in greater detail the distribution of the several industries. A careful study and thoughtful interpretation of the map will nevertheless show that the major industries of New England are suggested. For example, manufacturing is shown and the map reveals the fact that the New England district is a part of the larger manufacturing region of northeastern United States. The children will notice that manufacturing is being carried on throughout Connecticut, Rhode Island, and Massachusetts, but that it is less general in Vermont, New Hampshire, and Maine.

The wide distribution of manufacturing should suggest the need of railroads to bring together the necessary raw materials and to distribute to markets, ports of shipment, and consuming centers the output of New England factories. By referring to Figure 147 the children will see that the railroad net of New England is most dense in the manufacturing regions, less dense in the hill country and almost lacking in such sparsely settled regions as the forests of northern Maine.

That there is agriculture in New England is suggested by the word "tobacco" in the lower Connecticut River valley, where this crop is so generally cultivated. The attention of the children should be called to the fact that there must be farms in the river and lake valleys, on the lower hillsides and on the coastal plains, and that probably other crops are also raised.

It should be noticed that the grazing industry is continuous with that of New York, Pennsylvania, and Ohio, and is suggested by the word "cattle" stretched across these states and extending into Vermont. Have the children review Section 24. The word "lumber" in northern Maine, and the word "fisheries" along the coast, will suggest other industries in which the people of New England are engaged.

Number of People Engaged in Each Industry. — Now call the attention of the children to Table 5, page 261. This gives for each of the state groups the number of people engaged in gainful occupations, *i.e.*, occupations for which they receive pay. For New England the total number in all industries is about 3,000,000. Of this number approximately one half are employed in manufacturing industries of some sort. About one sixth are engaged in commerce, including trade and transportation. The industries of manufacture and commerce together employ about 2,000,000 of the 3,000,000 total. Of the remaining million approximately one fourth are engaged in agriculture, while dairying and grazing, lumbering, quarrying, and fishing each employ in the neighborhood of ten thousand people, or approximately one third of one per cent of the total. The remainder are engaged in professional, domestic, or clerical service and are not taken into account in this study.

These figures and proportions may be illustrated very simply. If three crayons represent all of the people gainfully employed, one crayon and half of another will

represent those engaged in manufacture. The other half of the second crayon may stand for those engaged in trade and transportation. One fourth of the third crayon will show what proportion devote their attention to agriculture, and very small pieces may stand for those who are employed in dairying and grazing, lumbering, quarrying, or fishing. What remains represents the professional, domestic, and clerical group.

Such a study as the above will give the teacher a hint as to the relative amount of time to be devoted to the teaching of the several industries and will explain the distribution of space in the text. Naturally, manufacturing has been given much more space than any other industry. As the manufacture of textiles, leather goods, metal wares, and paper furnishes employment for the bulk of the manufacturing population, these particular industries have been given especial attention.

Agriculture in New England. — The study of agriculture should include the reasons why much of New England is not good farming country, why the best farms are in the fertile valleys and coastal lowlands, and why agriculture is so intensive near the large cities. A short list of the more important crops may be made up and the uses of each commented upon. This study of farming in New England has been enlarged to include a brief mention of dairying and the other animal industries.

In the treatment of paper manufacturing (Sec. 103) reference is made to the pulp wood obtained in Maine,

New Hampshire, and Vermont. Section 105 again makes reference to the use of wood in the manufacture of paper and to the manufacture of lumber and a variety of wooden wares. With a little help from the teacher the children will be able to make up a short list of wooden articles made in New England factories. The making of maple sirup or maple sugar from the sweet sap of the sugar maple is so general in New England that it is given extended mention. Make it clear, however, that, though it is an industry dependent upon the forest, it is usually carried on as a part of the early spring work on farms where groups of these sugar maples have been left standing for the purpose.

Quarrying in New England. — So far as mineral resources are concerned, Figure 144 shows only small and, as we know, almost unworked deposits of iron ore. Certain rocks useful in building are, however, found in various parts of New England, and quarrying therefore demands some attention. There are large New England quarries of granite, slate, and marble, which furnish building materials of so high a grade that they are shipped long distances. The general character of the industry can, undoubtedly, be best illustrated by taking the children to visit some local quarry where blocks of rock are being prepared for use. If there is no quarry in the neighborhood, attention may be called to the use of stone in local buildings, to the school blackboard, if it is made of slate, and to statues and monuments or the headstones of the local cemetery. All of these show

uses to which certain of the hard or fine-grained rocks found in New England quarries may be put.

From Figure 144 the children have already learned that there is fishing in the waters off the eastern coast of the United States. In Section 107 the fishing grounds usually frequented by the New England fleets are more definitely located and the chief fish caught are mentioned. The "Banks of Newfoundland" come in for special mention and they should be located on Figure 135.

In the text treatment of all of these industries the regions and cities in which they are of especial importance are mentioned. Each one of them should be located on the map (Fig. 157). When there is concentration of a particular industry in a limited region this fact should be noted.

New England Resorts. — The cool uplands and cooler mountains and the windswept seashores of much of New England are extensively used as health and pleasure resorts. Each in its own way possesses elements of beauty, and every year many thousands of our people enjoy a summer vacation at one or another of the New England beauty spots. Indeed, the catering to the needs of this migrant summer population has come to be a great industry not only in New England, but in other suitable parts of the country. That the children may understand why so many visitors are attracted to New England resorts it would be well for the teacher to get from railroad and steamship companies some of the illustrated booklets issued by them to advertise the resorts

they serve. Help the children to locate on Figure 157 any resort in which they may be interested. Have them take note of the character of the surrounding country as shown in the pictures and see if the map suggests it.

Transportation in New England. — To serve the needs of industry and of those who travel on business or pleasure, vast transportation systems have been created in our own and other industrial countries. These include railroads, trolley lines, and coastwise and transoceanic steamship lines. Some idea of the transportation needs of New England is gained through a brief review of its manufactures. Determine which of the materials used are of local origin, which are from other parts of our own country, and which are from other and more distant lands. When this has been done the need of such transportation systems as those above mentioned will be apparent. The study of the sea-borne trade will bring into prominence two or three of the larger New England ports.

Use of Text Pictures. — The pictures in the text are there for use, not for decoration. In practically every instance they will be found upon the page that includes the text reference or upon the facing page. Whenever such a text reference occurs, the illustration should be seriously and carefully studied. If the picture is of an industrial character it will, as a usual thing, show but one step in a longer process. The teacher should connect the step illustrated with what has gone before and what is to

come after, so that the children will have some idea of the process as a whole. Take, for example, Figure 160, "Conveying ice to a large ice house." The text says "During the winter . . . . The rivers and lakes are frozen over, and large quantities of ice are cut and stored for summer use." In the picture the men are loading

Fig. 160. Conveying ice to a large ice house

cakes of ice upon the conveyor by which it is lifted to a higher level where it can be put into the ice house. What season of the year is it? What must have happened to the water in the lakes, ponds, and rivers? Before ice of sufficient thickness could be formed what must the temperature have been? And for how long? How is the ice cleared of any surface cover of snow and how is it cut into cakes of the size shown? These or similar questions may be used to connect the picture with what has gone before. After the ice has been put into the ice house, what is to be done with it? Bring

out such facts as the following: It will be stored in such a way as to protect it from the heat and keep it from melting. When needed it may be used in some local hotel or family refrigerator, to keep food from spoiling, or it may be used to cool water, to freeze ice cream, or to keep carloads of fresh fish or milk from spoiling en route from port or farm to some distant city.

Figure 161 shows the weaving of woolen cloth in a mill in Lawrence, Massachusetts. Before this weaving can be done, however, the wool must be clipped from the backs of the sheep, transported to market and to factory, sorted into proper lengths for various uses, and cleaned and spun into yarns of proper size and strength. After the cloth is woven it must be dyed, inspected, cut into correct lengths, packed, and shipped to the place where it is finally sold. Its probable use was, of course, decided upon before the cloth was woven and undoubtedly influenced the choice of the wool used and the processes of manufacture adopted.

It is, of course, needless to say that the teacher should not make this picture study an end in itself. Nor should it be made an occasion to dwell upon the details of industrial processes. The ideas developed and the stories told ought to be brief and sketchy. What is wanted is that the children should think of such industrial pictures as representing one step in a continuing process and that they should think through this continuing process from the source and use of raw materials to the production of objects of use or beauty.

The Middle Atlantic States

Compare with Other Groups. — In the study of the Middle Atlantic States the size of the group should be determined in reference to any group previously studied and in comparison with the rest of the United States. (Fig. 150 and Table 2, page 260.) Distances, especially between large and important cities, may be measured by using the scale of miles shown on the map (Fig. 173). Such, for example, are the distances from the city of New York to Albany, Albany to Buffalo, or New York to Philadelphia. Enough attention should be given to the study of the surface to note which regions are highland and which are lowland. The continuous lowland reaching from New York to Buffalo should be especially noted, as should also the lowlands crossed in going from New York to Philadelphia.

Climate. — Climate should be studied enough to help the children to understand that most of the highlands and much of the lowlands are snow covered for weeks or months during the colder part of the year. The influence of the melting snows of the highlands, in spring or early summer, upon the flow of the streams that rise in these highlands should be given consideration. The importance of river valleys as routes of trade and travel should be again mentioned.

Occupations. — The study of Figure 144, and of Table 5 on page 261, shows that in this group of states, as in New England, some of the people are engaged in

each of the great industries, including manufacture, trade and transportation, agriculture, mining and quarrying, dairying and grazing, lumbering, and fishing, as well as in professional, clerical, and domestic duties. In an area only a little over 50% larger than New England the population engaged in gainful occupations is almost three times as large. Over one third of the people so employed devote their time to manufacturing and one fifth are engaged in trade and transportation. Agriculture employs half as many people as trade and transportation, and mining and quarrying employ half as many as agriculture. The numbers following other industries are very small. One third of one per cent are in dairying and grazing, one third as many in lumbering, and only half as many in fishing as in lumbering.

Population. — The distribution of the population of the Middle Atlantic States is indicated by the location of the larger cities (Fig. 173). In New York state most of these cities are located near the mouth of the Hudson River, on narrow strips of land bordering the banks of the Hudson and Mohawk rivers, and on the plains of Lake Ontario and Lake Erie. Other cities of considerable size and importance have developed in the valley of the St. Lawrence, in that of Lake Champlain, at the head and foot of the Finger Lakes, and in the larger stream valleys in the southern part of the state. So far as New Jersey is concerned the chief cities are in the northern part of the state, across the Hudson River from New York; along the railroad routes from New

York to the west, especially the route from New York to Philadelphia; and in seaside resorts along the Atlantic coast. Many of the cities of Pennsylvania have grown up in the lowland region in the southeastern part of the state and in the broader valleys of the larger streams. Other large centers of population, as the map shows, have come into existence in the highland regions of both eastern and western Pennsylvania.

Before turning to the study of industries, the teacher should trace out with the children the distribution of population as outlined above.

Agriculture and Dairying. — For reasons that will appear presently it is well to begin with the study of agriculture and the associated industry of dairying. Have the children review Section 97. In much of New York, and in much of northern New Jersey and Pennsylvania, the great ice sheet stripped the highlands of most of their soil. On the poor, thin soils that were left, crops cannot be grown to advantage, and in these regions, therefore, dairying has developed or forests have been allowed to retain possession of the land. In the river valleys the soil is for the greater part fine and deep, and there the pioneers of the early days established their settlements and laid out their farms.

Later, as roads, canals, and railroads were built through the valleys, they tied these settlements together. Each of them became a trade center for the surrounding country, including the farms and small villages of the neighboring uplands.

Cities. — As the great west was opened up, the Hudson, Mohawk, and Lake Plains route was the one through which communication with the seaboard was most easily maintained, and the city of New York ultimately became the largest city and greatest seaport of the world. Little by little the settlements in the river valleys ceased to be mere trading centers. Taking advantage of their favorable location for obtaining the necessary raw materials and for disposing of their manufactured products, they turned their attention to the production of various articles for which there was large demand in markets that they were able to reach. To maintain the life of such large centers of population food was necessary and more of the hill country was brought under cultivation. The valley farms were cultivated more intensively, railroads were built into the dairying country to make sure of a daily supply of fresh milk, and farms near the larger cities were turned into truck farms or market gardens. Look over with the children Table 3, page 260, and note the rank of the Middle Atlantic States as growers of such fruits as apples, cherries, grapes, pears, and strawberries, and it will be at once apparent why the fruit-raising industries of these states are mentioned.

Coal and Oil. — In the highland regions of Pennsylvania, however, still other causes played a part in the location and growth of cities. Have the children turn to Figure 144. There they will find that Pennsylvania produces oil and has deposits of coal and iron. Figure

179 shows the coal regions of the state even more clearly. It is from the small deposits in the eastern part of the state that the hard coal or anthracite is obtained. Because of this mineral wealth and other minerals of value, large centers of population have grown up near the mouths of mines and at strategic points where necessary ores and fuel may be most easily and cheaply brought together for the smelting of ores and the manufacture of iron and steel.

After a brief review of the conditions that have combined to make manufacturing so important in the Middle Atlantic States and of the reasons why the trade routes of the whole region focus upon the cities of New York and Philadelphia, the teacher should take up with the children the study of the larger and more important cities and their chief industries.

The South Atlantic States

Agriculture Predominant. — In the South Atlantic States more than half of the gainfully employed population is engaged in agriculture, about one fifth in manufacturing and somewhat more than one tenth in trade and transportation. It is evident, therefore, that agriculture is the dominant industry. As an introduction to its study enough attention should be given to the position, surface, and climate of the group to account for the crops raised in different parts of the region. Figure 144 indicates the chief crops to be cotton, corn, and tobacco. Others are mentioned in the text. Make

use of Table 3, page 260, to see how the states of this group rank in the production of cotton, cottonseed, grapefruit, oranges, peaches, peanuts, strawberries, sugar cane sweet potatoes, and tobacco. The same map also shows the presence of forests and minerals and gives evidence that there is fishing in the coastal waters. Making use of these raw materials, large and increasingly important manufacturing industries are developing, and an important domestic and foreign commerce is maintained.

Cities. —After the industries have been studied, a brief consideration of the more important cities will localize the larger industrial regions and trade centers. Figure 196 indicates more accurately than Figure 144 the region of cotton production and should be studied in connection with Figure 193 to locate these regions more definitely. Make careful use of the illustrations.

In connection with the study of Section 129 have the children review Sections 61, 63, and 64.

The South Central States

The Chief Industries. — The chief industry in the South Central States is agriculture (Table 5, page 261), while manufacturing, although second in importance, gives employment to only about one fifth as many people. Trade and transportation together employ fewer people than are engaged in the manufacturing industries, and only about one tenth as many devote their attention to mining and quarrying. Grazing, an industry that makes an especial appeal to boyish imaginations, really calls for

the service of less than one half of one per cent of those gainfully employed, and lumbering furnishes work for only a few more. The number engaged in fishing is, in proportion to the total population, too few to demand any attention.

Regions of Most Profitable Agriculture. — In presenting to the children the relief, drainage, and climate of this region the teacher should choose for emphasis facts that will help to explain the industrial life of the people. Agriculture can be profitably carried on in the Great Appalachian Valley of eastern Tennessee; less profitably in the Cumberland Plateau of Tennessee and eastern Kentucky, where the streams have cut it into numberless hills separated by a maze of steep-sided valleys; yields poor returns in the highlands of western Arkansas and eastern Oklahoma; and is almost absent in the region of light rains among the plateaus and mountains of western Texas (Fig. 145).

On the other hand the fine, deep, rich soils of the flood plains and deltas grow excellent crops, especially where there is sufficient rainfall (Fig. 145), or where the land can be irrigated. Among the more important crops are cotton, sugar, rice, corn, and tobacco. Have the children make use of Figures 144, 196, and 220 in locating on Figure 206 the regions in which these crops are grown. Certain of them can be grown only in regions where the greater part of the year is without a killing frost. If the children are able to find out for each of the crops above mentioned the frost-free period required for profit-

able cultivation they will understand why some of them are grown only in the southern part of our country.

Grazing. — In western Texas and Oklahoma, especially in regions of light rainfall, grazing is still carried on, although the industry employs no great number of people and is of decreasing importance. The picturesque character of the industry, however, makes its appeal and justifies the attention devoted to it (Fig. 412).

Mining, Lumbering, and Manufacture. — When the children take up the mining and lumbering industries for study they should make use not only of Figure 144 but also of Figures 414, 415, and 416. These last named maps may be used in the study of state groups already discussed if the teacher wishes to do so, but the quantity of oil produced, the richness of the ore beds, and the extent of the forests in the South Central States justifies the delay in their use until this time.

For the most part the manufacturing industries of this group of states grow out of the use of raw materials of local production and this relation should be pointed out when the manufactures of the whole region are summarized.

Cities. — Cities should be located as mentioned and remembered in connection with the industries for which they are noted. Make use of the illustrations as suggested in an earlier part of this chapter and have the children consult Table 3, page 260, for the rank of the several states of the group in the production of crops there listed.

The North Central States

Leading Industries. — In the North Central States agriculture and manufacturing each employ almost an equal number of people, and trade and transportation together nearly two thirds as many as either of the others. There are more people engaged in mining and quarrying in this group of states than in any other state group except the Middle Atlantic, and they make up about one fourth of the total number for the whole United States. Dairying and grazing give employment to about one sixth and lumbering to about one eighth as many as do mining and quarrying.

Agriculture. — Here also, as in the South Atlantic States, the surface, drainage, and climate should be studied chiefly in reference to their influence upon agriculture and related industries. It is in this group of states that wheat is grown in such abundance to furnish bread for most of our people, and corn enough to fatten millions of cattle and swine. It is the chief grain-growing region of our country, these two grains being the chief ones cultivated, and they should be emphasized accordingly. The regions of heaviest production as shown in Figs. 220 and 221 should be located on Fig. 218.

Raw Materials and Manufacture. — Because of the very close connection between the production in this region of certain raw materials and the preparation or manufacture of goods in which these raw materials are used, several sections are devoted to a consideration of

such relations. The children should study Section 140, Cattle Raising and Meat Packing, Section 141, Forests and the Manufactures of Wood, and Section 142, Mines and Manufactures of Metals, with this in mind. Other manufactures, some of which are also largely dependent upon local supplies of raw material, are treated in a separate section under the general heading Manufacturing. In this connection study Figures 412, 414, 415, 416, and 417.

In a region that raises so large a part of the food of our people and prepares it for market it is natural that there should be large cities and many thousands of miles of railroad. Have the children study the cities with their industries and see how the railroad net (Fig. 147) in the eastern states of the group compares with that in other parts of our country.

The Plateau States

Leading Industries. — Of the people employed in gainful occupations in the Plateau States half are engaged in the two industries of agriculture and manufacturing,—nearly 30% in the former and about 20% in the latter industry. Another 20% give their attention to trade and transportation, 10% to mining and quarrying, and only about 5% to dairying and grazing.

Agriculture and Grazing. — Agriculture is possible only in regions of favorable temperature, with sufficient rainfall, or where either dry farming or irrigation is possible.

The study of relief and climate, therefore, should be primarily for the purpose of stating in rather general terms the conditions that control agriculture, grazing, and the growth of forests. With a little help from the teacher, irrigated and dry-farming regions may be located. Figure 238 shows the areas that have been set aside as national forests. Under certain conditions the government permits grazing in these reserves. In this work have the children make use of Figures 144, 145, 235, 238, 412, and 415. Rainfall should be related to relief (Figs. 145 and 235), forest areas to the windward slopes of the mountains (Figs. 235 and 415), forest regions to national forest reserves (Figs. 238 and 415), and all of these should be considered in their relation to the distribution of population (Fig. 138).

Mining. — Figure 144 shows numerous and widely scattered mining regions in this group of states. The ores obtained include the precious metals gold and silver as well as the less valuable copper, zinc, and lead. The mineral regions of greatest yield are reached by railroads (Fig. 147), and a number of smelters and stamp mills have been located at convenient points. Have the children compare Figures 144 and 147, so that they may see to what extent railway lines have been built to serve agricultural and grazing interests, which of them have been built into regions of mineral production, and which are primarily transcontinental.

Manufacturing. — It should be made clear to the children that manufacturing in this group of states is

the outgrowth of such special crops as the sugar beet (see Figure 144, eastern Colorado and northern Utah) and of the mining industries.

Scenery. — In a mountainous region so vast as that included in the Plateau States, it is not surprising that there is much wonderful scenery and that there are some regions of special and peculiar beauty and interest. These include the Yellowstone National Park with its gorgeously colored canyon, picturesque falls, and wonderful geysers; the Glacier National Park with its rivers of ice; and the Grand Canyon of the Colorado, the most famous canyon in the world. To these and other attractive places travelers from all parts of the world go in search of health, pleasure, and inspiration. The teacher who loves the out-of-doors and the wonders and beauties of natural scenery will eagerly welcome this opportunity to give the children glimpses of this wonderland of their own country.

The Pacific States

Distribution of Population. — A study of the map of the Pacific States (Fig. 244) shows that the greater part of their population is found in the valleys of the chief rivers and along the coast. The physical factors that control this distribution of population are relief (Fig. 244 and Sec. 155) and climate (Fig. 145 and Sec. 156). Since latitude as well as altitude influences temperature, the great extent of the area under discussion should also be mentioned.

The Chief Industries. — In discussing agriculture and the associated industries of dairying and grazing the following facts should be taken into consideration: 1. Temperature will help to determine the choice of crop or fruit to be grown in a given region. 2. Only lands level enough to be easily cultivated will justify the cost of the necessary seed and labor. 3. Satisfactory results can be obtained only where there is sufficient rainfall or where the land can be irrigated. 4. Regions in which the rainfall is not sufficient even for successful dry farming and where irrigation is impossible may nevertheless furnish excellent pasturage. The fruits and grains of northern Washington should be contrasted with the fruits and cotton of southern California. The canning of fruit and vegetables, the manufacture of beet sugar and flour, and slaughtering and meat packing are other industries growing out of agriculture and grazing.

Have the children work out the reasons why there is such a heavy timber growth on the western slopes of the mountains of western Washington and Oregon and northern California. To what other industries does this lumbering give rise? See if the pupils can tell why the lumber resources of this region were of so much importance during the World War.

Attention should also be given to the mineral resources with especial reference to the petroleum output. The value of this fuel oil in the development of transportation and of manufacture should be presented.

The fishing industry will be of interest to the children,

not only because of the number and the size of the fish caught (Fig. 250), but because cans of salmon can be found on the shelves of almost every grocery store in our country.

The children should summarize the manufacturing that has resulted from the development of the industries already studied, consider what is to become of the output of factories and shipyards, and locate and characterize the chief cities.

CHAPTER VI

OUTLYING POSSESSIONS OF THE UNITED STATES AND THE COUNTRIES OF NORTH AMERICA OTHER THAN THE UNITED STATES

Outlying Possessions

As an introduction to the study of the outlying possessions of the United States, the children should be told about the other lands that belong to our people or are controlled by them. These lands should be located on a globe and the time that it takes to reach them from the nearest seaport of our country should be estimated.

Alaska. — Have the children turn to Figure 135 and find Alaska. Ask them to find the answers to the following questions: "How does Alaska compare in size with the main body of the United States?" "How does it compare in population?" (Table 2, page 260.) "Of what use to our people is this great territory?"

To find the answer to this last question, or *problem*, as such questions are now so frequently called, requires the bringing together of facts concerning the relief, the climate, the natural resources, the occupations of the people, the lines of communication and transportation, and the trade relations of Alaska with the rest of the world.

Helps for the Study of Alaska. — The materials furnished by the textbook from which to get this information include the following:

1. Physical and political maps of North America (Figs. 134 and 135). From the political map the children will be able to determine the position of Alaska in relation to the United States, the Dominion of Canada, Asia, the Pacific Ocean, the Arctic Ocean, and the North Pole. From the physical map it will be apparent that the highlands of Alaska are a part of the great mountain mass of western North America.

2. The map of Alaska (Fig. 253) showing the relief features of the peninsula in greater detail. The political boundary line as shown is the one finally agreed upon by the governments concerned. The map indicates that there are no great lowlands bordering on the Pacific Ocean. The shore lines of the south and southeast are bordered by rugged mountain ranges and fringed by rocky islands. Lower lands are found along the shores of Bering Sea, Bering Strait, and the Arctic Ocean, and extend long distances into the interior as the valleys of the larger streams.

3. The map of the Climatic Regions (Fig. 124). This map shows that most of Alaska is in the Cold Temperate Region, and as the text on page 65 states this is a region that, although "cold most of the time," has, nevertheless, "a temperate climate for at least part of the year."

4. A map showing the winds of North America (Fig. 139). The broken arrows of this map indicate that

during the summer the winds from the Pacific blow toward the land.

5. The rainfall map (Fig. 140) shows that the heaviest precipitation of moisture is on the windward slopes of the Coast Mountains (compare Figs. 140 and 253) and that it decreases inland and toward the north. In this connection have the children re-read Section 89 for the paragraphs that refer especially to Alaska.

6. Figure 142, a glacier in Alaska.

7. Figure 141, showing an iceberg, or mass of floating ice such as may be seen off the shores of Alaska where the glaciers reach the sea. To gain an idea of the size of such a mass of ice the children should compare it with the ship shown in the same picture and should compare the size of a large ship with that of a human being in such a picture as Figure 125.

8. Figure 254. In this Mount McKinley, the highest peak of North America, shows gray and snow-clad, and snow covers in part the slopes of the mountains in the middle distance, although the foreground of the picture shows a grass-covered field, indicating that the picture was taken during the warmer part of the year.

9. Section 164, on Alaska. The studies already made should have prepared the children to understand that even a short summer season may, because of the warm, sunny days, give enough warmth in favorably situated valleys and lowlands for the growth of grass and some grains and vegetables. Have the children locate on the mainland (Fig. 253), the valleys which are said to be

forested, the streams in which salmon may be caught, and the mining regions of Nome, Fairbanks, and near Juneau. Find the Pribilof, or seal islands, of the Bering Sea.

10. Figure 138 showing centers of population in Alaska. See if the children can determine from Figure 253 the names of each of the areas of settlement and to what industry they owe their existence.

11. Figure 409, a commercial map of the world, shows that a considerable area in Alaska is commercially undeveloped, that much of it is capable of development, and that some few parts have already reached that condition. It shows also the beginnings of railway construction and the steamship lines by which Alaska is tied to the seaports of western United States.

Summarize by having the children make a list of the things that are produced in Alaska which the people of that territory would probably want to sell. Have them make another list of the things that they might need. Where would they sell their output? Where would they obtain their supplies?

Panama Canal Zone. — In considering the second of our outlying possessions, the Panama Canal Zone, Section 165, the fundamental fact is that after a great French company formed to dig this canal had failed, the government of the United States thought it was worth while to attempt it. Why? Stated as a question this becomes a problem for the children to solve. Have them turn to Figure 104 and trace the route that a ship going from San Francisco on the west coast of the United

States would have followed in going to New York before the construction of the canal. What advantage is gained by using the canal? On Figure 409 have them trace a journey by sea from New York to ports on the west coast of South America around the southern end of that continent and also via the canal. Which route is the shorter? Try the same thing for journeys between ports on the west coast of Europe and ports on the west coast of North and South America. What, therefore, is one of the advantages coming to our people through the building of this canal?

Usefulness of Canal in Case of War. — If our country was at war and it became necessary to send ships from one coast to the other, as was the case in the Spanish-American War, would there be any advantage in our having such a canal? Why, then, would our government naturally want to erect forts to protect the approaches to the canal and station troops in the Canal Zone?

The Barge Canal in New York state (Fig. 173) is closed during certain cold months of the year. Why? Is the Panama Canal ever closed for the same reason? (Fig. 124 for latitude, Fig. 256 for altitude.)

For the teacher's convenience the following table is given as showing the distances in nautical miles saved on certain sea routes by the use of the canal. It has been adapted from one given in Barrett's "Panama Canal, What it Is, What it Means," published by Pan American Union, Washington, D. C. (A nautical mile is about 6080 feet.)

FROM			Route Via	TO
New York	New Orleans	Liverpool		
13.953	14.369	14.320	Magellan	Seattle
6.080	5.501	8.654	Panama	
7.873	8.868	5.666	Distance saved by canal	
13.135	13.551	13.502	Magellan	San Francisco
5.262	4.683	7.836	Panama	
7.873	8.868	5.666	Distance saved by canal	
13.312	13.728	13.679	Magellan	Honolulu
6.702	6.123	9.276	Panama	
6.610	7.605	4.403	Distance saved by canal	
10.215	10.631	10.582	Magellan	Guayaquil
2.810	2.231	5.384	Panama	
7.405	8.400	5.198	Distance saved by canal	
9.613	10.029	9.980	Magellan	Callao
3.363	2.784	5.937	Panama	
6.250	7.245	4.043	Distance saved by canal	
8.380	8.796	8.747	Magellan	Valparaiso
4.633	4.054	7.207	Panama	
3.747	4.742	1.540	Distance saved by canal	
11.344	11.760	.....	Magellan	Wellington
.....	.....	12.989	Suez	
8.851	8.272	11.425	Panama	
2.493	3.488	1.564	Distance saved by canal	
13.162	14.095	.....	GoodHope	Melbourne
10.392	9.813	.....	Panama	
2.770	4.282	.....	Distance saved by canal	

Porto Rico. — Porto Rico and certain small islands near it are in the region that is hot the entire year (Fig. 124). None of the mountains are high enough to be very cool even on their summits (Fig. 255). The prevailing winds are from the northeast (Fig. 139). The heaviest rainfall is on the northern side of the mountains, as in Cuba and Haiti (Fig. 140). The chief crops are those of warm countries. (See list, Sec. 166.) The islands are densely populated (Fig. 138). What products raised in Porto Rico might our people want? What things that we produce might be sold to the people of Porto Rico? Is there a steamship line connecting the island with a United States port so that an exchange of products may be effected? (Fig. 409.)

Hawaiian Islands. — As the Hawaiian Islands (Sec. 167) are in approximately the same latitude as Porto Rico (Fig. 409), as the prevailing winds are from the same direction, and as the islands are somewhat mountainous (Fig. 259), the most important crops are the same. Because of this close resemblance to Porto Rico no wind or rainfall map of these islands has been included in the First Book. Where on each island will the crops be grown? Which of the products would naturally be sent to the United States? Through what ports would trade with the United States be carried on? (Fig. 409.) Why should so many ships crossing the Pacific make Honolulu a port of call?

One fact of peculiar interest about these islands is that many active volcanoes are found there. As this is the

first time that the children have met them in their study, the teacher should be careful to describe them with sufficient care so that their appearance and activity may be understood. Note that volcanoes give out lava, dust, and steam,—not smoke.

Philippine Islands. — The maps to be used in teaching the Philippine Islands include: (1) Figure 357, which shows the position of these islands in relation to the continent of Asia; (2) Figure 259, showing the relief of the islands and that there are many islands in the group, most of which are rather small; (3) Figure 124 for their temperature; (4) Figure 358 for the prevailing winds and the amount of rainfall, and (5) Figure 409. In Figure 263 the children will see irrigated rice terraces built with enormous labor by the untutored native peoples of these islands. As there was not enough level land in some of the more densely settled parts of the island the terraces have been built on both sides of the valley wherever the water for the necessary irrigation could be obtained.

Small Pacific Islands. — Guam and Tutuila (Fig. 259) are used chiefly as coaling stations. Why should such stations be necessary? What nations would require them? From what sources would such island stations obtain the coal necessary to supply the steamships that call there? Why should our government want such stations in the Pacific Ocean?

The other small islands shown in Figure 259 do not require attention.

Other Countries of North America

The children should now be asked to turn once more to Figure 135. On this map they should locate the United States, Alaska, the Panama Canal Zone, and Porto Rico, and should be asked to point out the parts of the continent that have not yet received any detailed consideration. They should notice that on the map these other, or *foreign*, countries are sharply distinguished from our own by the use of contrasting colors. By this use of color, the children will be able to see at a glance the relative size and position of the different countries. Care should be taken, however, that they do not draw incorrect conclusions from its use. It should be pointed out that there will be no marked difference in the physical character of the land itself, its climate, its resources, or the occupations of the people on opposite sides of a common boundary. Illustrate this with Figure 134.

The great highland mass in the western part of our country extends northwestward across the Dominion of Canada into Alaska and southeastward through Mexico into Central America; the Great Central Plain extends from the Gulf of Mexico to the Arctic Ocean; and the Gulf Plain of southeastern United States is continued southward as a narrow coastal plain bordering Mexico and Central America on the east, with a very considerable increase in width in the Peninsula of Yucatan. Reference to Figure 124 will show that the boundaries between the several climatic regions

there distinguished do not follow political boundaries in any way, although, in general, Canada is colder and Mexico and Central America are warmer than the United States.

Canada. — Keeping in mind a fact already stated, *viz.*, that it is not usual to find marked differences in resources and industries on opposite sides of a political boundary, even though there may be differences in race, language, government, and laws, have the children study Figures 144, 412, and 415 to see if they can infer what industries already studied in the United States will be found in the southern part of Canada. In southern Ontario to the north of Lakes Erie and Ontario they may reasonably expect to find wheat and corn (Fig. 144), the same fruits as in northern New York (Table 3, page 260), as well as cattle and dairy products (Fig. 412). The wheat lands of Minnesota and North Dakota (Fig. 144) will also extend northward into Manitoba and Saskatchewan and the cattle and sheep ranges into the dry plains of Alberta. Forests like those of Maine may be looked for farther east in New Brunswick and farther north in Quebec. Trees like those in Michigan, Wisconsin, and Minnesota will be found in Ontario, and forests similar to those on the windward mountain slopes in western United States will be found in the mountains of British Columbia. Such minerals as were found in the mountains of western United States and eastern Alaska may be looked for in western Canada, and other mineral regions should be located. In studying

New England the children learned of the cod fisheries on the Grand Banks of Newfoundland. Would they expect to find the people of Nova Scotia (and Newfoundland) ignoring this industry?

Have them study the distribution of population in Canada (Fig. 138 and Fig. 265) and answer such questions as the following: "In what part of Canada are most of the people?" "Where are the larger settlements?" "For what reason might people push beyond the zones of industry already mentioned?" "With what neighboring country might the people of Canada trade? By what routes?"

Newfoundland. — Newfoundland, a colony of Great Britain although not a part of the Dominion of Canada, is chiefly important for its fishing and needs no more extended study than has already been suggested in connection with that industry.

Greenland, the largest island in the world, has a fringe of population along its southern and western shores (Fig. 138). Why is most of the island uninhabited? (Fig. 132.)

Southern Countries. — The southern parts of North America (Fig. 271) not already discussed include Mexico, Central America, and most of the islands lying to the south and east of the Peninsula of Florida. Except in the highlands of Mexico, where, on account of great elevation, the climate is quite temperate, all of these lands lie in the hot region of the earth (Fig. 124). The prevailing winds are from the northeast (Fig. 139),

and the heaviest rainfall is on the northern and eastern slopes of the hills and mountains (Fig. 140). Through this study of the maps already mentioned and the use of Figure 144 and Figure 412, as suggested above for Canada, the children should be able to determine in reference to Mexico the probable difference between the crops and fruits raised in the temperate and those raised in the hot regions, whether irrigation is needed, and where the probable grazing regions are, the regions where minerals might be found, and the mode of life and the distribution of the people. For the other countries intelligent inferences should be made so far as possible and verified by the study of the text.

A brief statement concerning the history of the Mexican people is included so that the children may understand that in studying the people and industries of these regions they are dealing with people of a different race and of mixed blood, whose mode of life, customs, and industrial practices may be quite different from those to which they are themselves accustomed.

CHAPTER VII

THE OTHER CONTINENTS

South America

Reasons Why South America is Next Presented. — In the Essentials of Geography the authors have chosen to present South America as the second continent to be studied. It should be said, however, that if a teacher much prefers some other order there is no reason why it should not be adopted. Certain facts have influenced the authors of the Essentials in their choice. Among them the following may be mentioned: (1) South America is nearer to our own continent than it is to any other, as the two are connected by the Isthmus of Panama. (2) These two continents make up the great land mass of the Western Hemisphere, commonly called the New World. (3) They show a remarkable similarity in form, relief, and drainage. (4) They were discovered, explored, and settled at approximately the same period in the world's history. It so happened that the exploration and settlement of the northern continent was carried on, for the greater part, by the people of northern Europe, and they have been remarkably active in its conquest and exploitation. Mexico and Central America, however, as well as South America, came under the influence of

the Spanish and Portuguese, and in the lands that they have administered the economic development has been much less rapid. (5) By this arrangement of continental study the children trace the succession of Climatic Regions (Fig. 124) from pole to pole and are made familiar with the fact that at any given time the seasons of the northern and southern hemispheres are, in corresponding latitudes, the exact opposites of each other. (6) In both continents the Europeans who attempted their exploration and settlement found native peoples already in possession. From the first it was the intention of most of those who came to North America to establish themselves upon the land and build homes in the New World. Under the circumstances conflict with the Indians was inevitable, and it was carried on for so long a time, and with such bitterness on both sides, that it finally resulted in the practical extermination of these native people. The early Spanish and Portuguese expeditions, however, came in search of such riches as the New World had to offer. Very few of those who took part in these early expeditions intended to remain as permanent settlers. Later, when such settlers began to come, they were more tolerant of the native peoples and their mode of life than the colonists of the northern continent had been. In some cases, especially after the importation of negro slaves, intermarriage occurred and races of mixed blood came into existence; but the ruling classes are, as a rule, descendants of the proudest and most ancient families of Spain and Portugal.

A further reason for early emphasis upon the southern continent lies in the fact that the United States is now entering with new activity into commercial relations with the countries of Latin America. In their study of the southern countries of North America, the children have already learned something of the mode of life and the industrial conditions in countries where such racial elements as have just been mentioned are found. The present industrial and social conditions in South America are, as is always the case, due in part to the influence of physical features and forces. They are also due to the utter indifference of the native peoples, the negroes, and many of those of mixed blood toward the economic development of their countries, and their evident contentment with their lot. In teaching the geography of South America such facts must be kept in mind, and once this point of view has been introduced, as it was in the study of Mexico and Central America, it seems reasonable to carry it over to the southern continent. In the study of Europe the influence of race upon the industries and ideals of people will show itself in ways much more complicated and far-reaching.

The Study of Each Continent

Textbook Equipment. — It is the purpose of a textbook in geography to present in an orderly and properly related way certain facts and materials. By means of these the children, when skillfully directed, should be able to work out the relation of people to the lands they

occupy and to other peoples. Because of their influence upon the lives and industries of people, certain geographic facts are fundamental. Sooner or later, no matter what may be the angle from which the study of a continent, country, or region is approached, these fundamental geographic influences must be taken into account. For example: Temperature is influenced by latitude and by altitude; rainfall by the direction of the prevailing winds, and by the position of the region in reference to mountains or large bodies of water; occupation by temperature, by rainfall or the possibility of irrigation, by the character and fertility of the soil, by the occurrence of valuable mineral deposits, including petroleum or oil; and trade is influenced by the distance of a people from the world's markets, by the sea or waterways of which they would make use, and by the presence or absence of obstacles to the construction and maintenance of the necessary lines of communication and transportation.

In any textbook for the use of children, therefore, there must be included a sufficient number of helpful maps and illustrations, and an adequate text treatment of important topics. In the Essentials of Geography all of these have been provided. It is, of course, not necessary that the order of the textbook should be followed; it is only necessary that the textbook should furnish the requisite data to enable the children to answer any question or solve any problem that it is reasonable to ask them to answer or to solve. Whatever the method of attack, the

data furnished should be used to bring out causal relations, and should lead up to an appreciation of the lives, industries, ideals, and purposes of people.

Text Maps. — For the first study of South America and the other continents, the map equipment (Essentials of Geography, First Book) includes full-page relief, physical, and political maps; maps showing winds and rainfall; hemispherical maps of Climatic Regions; and a map of the world giving the principal transportation lines, and showing the commercial development of each of the continents. Wars and treaties make necessary, from time to time, changes in political boundaries. Before each printing, therefore, the political maps are revised to bring them up to date as far as possible. Children are interested in such changes, and should be encouraged to give attention to the establishment of new countries and to the shifting of sovereignty over large and important areas, such as are specially mentioned in the text. But minor territorial adjustments should not receive special study.

Pictures. — Among the illustrations there are pictures showing the barren snow-clad summits of high mountains (Figs. 282, 298, 305, 364, 379); the fields and pastures of high plateaus and the gentler mountain slopes (Figs. 288, 290, 336, 356); great plains and broad valley bottom lands (Figs. 292, 293, 295, 339, 345); rural scenes in older lands (Figs. 327, 329, 336, 339, 348, 351, 356, 359, 374, 377, 379, 381, 392); unfamiliar plants and animals (Figs. 288, 289, 290, 301, 368, 369, 370, 387, 388, 389,

392); characteristic industries (Figs. 290, 292, 293, 296, 311, 314, 319, 323, 324, 325, 330, 337, 346, 361, etc.); harbors and shipping (Figs. 291, 297, 300, 311, 316, 320, 321, 322, 334, 335, 352, 354, 383, etc.); markets (Figs. 318, 362, 395); unfamiliar costumes and modes of life (Figs. 345, 348, 349, 350, 359, 370, 376, 377, 378, 379, 380, 390, 404, etc.); street views in great cities (Figs. 294, 315, 321, 328, 342, 344, 407); and extraordinary examples of man's work, both ancient and modern (Figs. 305, 341, 343, 354, 360, 391, 393, 396). Each has been included because it will help the children to a more definite knowledge and a better appreciation of the conditions under which people in other parts of the world are living. Suggestions as to how pictures are to be used, which need not be repeated here, are given in pages 61–63 and in Chapter XI of this manual.

Tables. — In addition to the maps and pictures there is a table (p. 259) giving the area and population of the several continents and of the countries into which they are divided; a table of the chief exports and imports of the United States, in which are listed goods and raw materials, sent to or received from these other lands (p. 260); a list of the larger or more important cities in foreign countries (p. 262); a short list of the world's greatest rivers with the length of each and the area of each drainage basin (p. 262), and an index (pp. 263-266). The children should be drilled in the use of the tables and the index. Help them to form the habit of estimating a country in terms of the density of its population. If

they are studying Brazil, for example, have them note its area 3,300,000 square miles, its population 24,308,000, and find the average number of people per square mile—approximately 7½. Let them do the same thing for their own country. According to the census of 1920, its average density is 34 per square mile. Compare the averages of these two countries with that of Belgium, which is about 650. Why should the population of Brazil be so small? Have them turn to Table 7, page 262. What Brazilian cities are mentioned? Find them on the map (Fig. 286). Why should most of these cities be in the eastern and southeastern part of the country, or along the Atlantic? On this see also Section 189.

Among the important products of Brazil not found in the United States are rubber and coffee. The cacao tree is also found there, and many cattle are annually slaughtered for their beef and hides. Does the United States import any of these articles? (Table 4, p. 260.) Is it reasonable to suppose that a part of them might come from Brazil?

Table 8, page 262, gives the Amazon, the great river of Brazil, as the river having the largest drainage basin in the world, namely 2,320,000 square miles, about 70% of the total area of the country.

The Index. — Train the children to use the index, not only for the spelling and pronunciation of the less familiar names and geographic terms, but also for quick reference to the pages of the text where a given subject is most fully treated.

It is very desirable that a teacher, before attempting to present to a class the geography of a new continent or a new country, should know in detail, so far as the text-book used by the children is concerned, the maps, illustrations, tables, and text that set it forth. The teacher who has such knowledge should be able to use any method, and to approach the subject from any angle.

Current Events. — Advantage may be taken of the interest aroused by the news of the day. A flood, a famine, war, pestilence, or a great celebration may serve. One teacher, for example, having Switzerland to teach, called the attention of the children to the fact that the morning paper stated that an avalanche had swept down the mountain side and ruined a certain district in that country. She then based her lessons upon the question: "Why should any one go to a country where such disasters can occur?" In searching for an answer the children studied the position of Switzerland; its relief, and the beauty of its scenery; its climate and its advantages as a health resort; the hotel industry to which those seeking recreation and pleasure give rise; the industries by which the people raise a part of the necessary food; the circumstances that have led to the manufacture of goods of high value and great excellence; the location of the larger centers of population; the routes of trade and travel; and the steps that have been taken to protect the homes and fields from similar disasters. Turn to the treatment of Switzerland in the Essentials of Geography, First Book, Sections 227 to 232 inclusive, and note that

the children would have found there the necessary material to answer the question asked, and to follow through the entire discussion.

International Trade. — The study of geography should also help the student to a knowledge and appreciation of the ways in which nations have developed and exploited their own natural resources, and of the relations, especially the economic relations, that they have established with other nations or peoples. One nation may have within its boundaries deposits of coal, iron, or mineral fertilizers sufficient to meet its own needs, and also the requirements of neighboring nations within whose boundaries such deposits are inadequate or wholly lacking. A nation possessing such advantages, or similar ones, will naturally make use of them in the development of its own industrial life. Also naturally it will seek to secure from other nations, in exchange for its surplus products, supplies needed at home and not produced in sufficient quantity, which these other nations are in a position to furnish. Out of such exchanges grows international trade.

International Relations. — At times, however, a nation possessing a virtual monopoly of an important resource may force or seek to force agreements with other nations that will put these other nations in the position of economic dependents. That is the way of greed. It sometimes happens that such one-sided agreements can be maintained only by the show or exercise of force. That is the way of war and ultimate disaster. Of course,

there are other factors involved. Utilization of national raw materials, and those secured from other peoples; enlarging industries; increasing wealth; trade and population expansion beyond the national boundaries or over seas; world trade and the building up of the land and sea forces necessary to maintain all claims and acquired rights no matter by whom they may be challenged; these are the successive steps by which nations climb the ladder of ambition to power. No nation can reach so perilous a position of world leadership without exciting the jealousy and suspicion of many, and the active enmity of a few other nations equally ambitious. No nation can, in the long run, maintain itself in such a position by force, for the world combines against it.

The teacher of geography who seeks an explanation of international alliances must think in terms of national passions or prejudices as they wax or wane with the passing years. The one who seeks to account for the poetry, the music, or the art of a race, as well as the one who takes into account the character rather than the quantity of a nation's industrial output, must think in terms of racial genius and aptitudes.

Results of the World War

War Changes.—Between the Political Europe of 1914 and the Political Europe of to-day there are, first, five mad years of a war in which most of the nations of that distressed continent were engaged, with alliance pitted against alliance; and, second, a period of reconstruction,

disturbed by lesser wars, and not yet ended. As a result of peace treaties already signed some nations have lost territory; others have gained it. Old nations have been reborn and new ones have come into existence with, in most cases, the active coöperation of the majority of the people affected. Racial groups formerly oppressed have won a larger or smaller measure of self-government. Even so they have not forgiven their one-time rulers, and new national distrusts and hatreds as well as new international friendships and alliances have resulted. Trade will seek new channels; factories will change their methods and their output. Years must elapse before the economic readjustment of Europe's younger nations can be completed.

The First Study of Europe. — The first time that Europe is taken up for study the children are too young to understand much of either the economic causes or the economic consequences of the war. Nor will they appreciate, except in their most obvious manifestations, the influence of race, religion, or political theory upon a nation's industry. The teacher should, however, have such influences in mind as a single example will show.

France. — As a race the French are lovers of the beautiful, the delicate, and the refined. Their language is musical, and was for hundreds of years, and to a large extent still is, the language of court and diplomacy. To a very remarkable degree the output of their factories, shops, and studios shows the influence of this racial feeling. We see it in their paintings, sculptures, rare per-

fumes, delicate porcelains, ornaments of silver, gold, and jewels, surgical instruments, and instruments of precision. Their textiles are of the finest weave and most delicate coloring. The modistes and costumers of Paris have been the leaders of fashion for centuries. To them the luxury-loving feminine world pays an annual tribute that mounts into millions. In spite of all this the French are not wanting in the sterner virtues, as the World War proved to those who had misjudged them. The world will never forget the "They Shall Not Pass" of Verdun. They are thrifty, and they cultivate their fields without loss of space, but they manage to do it so that from a distance a French landscape has the beauty of a huge mosaic. The meager supply of coal and iron left to France when Germany annexed Alsace-Lorraine at the close of the Franco-Prussian War, absolutely prevented, as it was intended to prevent, the entrance of the French into the race for industrial leadership. After the Germans obtained possession of Alsace-Lorraine they developed the mineral resources, established factories, equipped them with German machinery, imported German workers, found markets for the products, and established transportation lines through German territory. With the return of these provinces to France the industries also will pass to French control, and ultimately there will be changes in products, markets, and trade routes and in political and social ideals that will profoundly affect the welfare of the people of these two provinces, and of the people of France as well.

Such changes and readjustments are, of course, not confined to France and the former German colonies in Africa. They are taking place in much of Europe and in many parts of Asia as well. The teacher who wishes to make geography serve its highest purpose will take them into account in presenting the study of each continent as suggested in the earlier pages of this chapter (pages 92–97).

Africa and the German Colonies.—The great colonial empire of which Germany dreamed, and of which its African colonies were to be so substantial a part, has disappeared from the map. The control of the territories to which it laid claim in 1914, and of their native inhabitants, has passed to the Allied powers. Does this change of control affect only the governments concerned? What is its importance to Africa, the Africans, and the rest of the world? It lies largely in the fact that one nation may show a genius in colonizing that another does not seem to possess; a greater ability in dealing with native peoples, and in encouraging their intellectual, moral, and industrial development; a greater willingness to carry the white man's burden. The political changes in Africa put forward by an unknown number of years the completion of the Cape-to-Cairo railroad and the development of a seaport on the west coast of the continent with rail communication to a Mediterranean port and sea communication to the ports of eastern South America and other parts of the World.

CHAPTER VIII

GEOGRAPHY IN THE HIGHER GRADES

The Course of Study. — In the very great majority of the schools of the United States the course of study in geography is so arranged that each of the continents and most of the countries of the world are studied at least twice.

The considerations that have led to the almost universal adoption of such a two-cycle course are, on the whole, very reasonable. The first cycle is given because many children leave school at so early an age that, unless such instruction was given in the lower grades, they would go out into life with little or no information concerning the world in which they live. The second cycle is given because a proper appreciation of the meaning and influence of one's geographic environment must wait upon the heels of a larger knowledge, greater reasoning ability, and sounder judgments than can be expected from children so young as the group first mentioned.

Results of First Cycle. — It may be argued that it ought not to be possible for children to leave school when still so young as to make this arrangement necessary. Even if this is conceded, teachers must nevertheless deal with the facts. The question may be raised as to whether the younger children get enough out of the first study

of the world to make it worth while, and whether they would experience any substantial loss if they should leave school altogether ignorant of the world's geography. If such a course did nothing more than to make them conscious of their own country and its resources, it would be abundantly justified. But it should do more. It should awaken pride in the vast extent of the land in which they live. They should find pleasure in the fact that its fields yield an annual harvest sufficient to feed all our people, and that every year, in the warm southland, swelling cotton bolls burst with the snow-white lint from which is made cloth for everybody. Such a course may be so given that the children will have mental pictures of vast plains over which cattle graze, hillsides dotted with dairy herds, swine feeding throughout the corn belt, and nibbling sheep by the millions on unfenced pasture lands amid the western mountains. They will learn about the mines that yield the precious gold and silver, and the less valuable copper, zinc, and lead, and others from which come those commonplaces of our modern industrial life—coal and iron. Young as they are, they may be so taught that they will know something of the immensity and majesty of our great forests, and they will come to understand, in a measure, the dangers faced by those who follow the sea. With such a background it is but a short step to some sort of appreciation of the extent and importance of the railways over which these products are moved to factories, and the manufactured goods distributed to all parts of the country.

In addition such a course should give them an understanding of the lives, national viewpoints, and industries of our northern and southern neighbors, and of those who live beyond the sea. Out of this there should come not only an abiding faith in their own country, but a love of justice, and of the spirit of fair play.

The Second Cycle. — What, then, is left for the second cycle? A larger grasp of facts, a clearer understanding of causes, a better appreciation of national and racial ideals, and some vision of what lies in the future. The teacher who is to undertake the geography work of the higher grades needs to study with great care the organization of the book that is to be placed in the hands of the pupils, and to gather such supplementary material as has unusual value.

The Teacher and the Maps. — The teacher should know what each map shows and its limits of accuracy. Figure 80, Essentials of Geography, Second Book, for example, shows areas of population density of: under 2; 2 to 6; 6 to 18; 18 to 45; 45 to 90; and over 90. Regions having a density of 20, 25, 30, 35 or 40 per square mile are not shown except as they are included somewhere in the area the density of which is shown as between 18 and 45. No attempt is made to indicate in detail any density over 90 per square mile, yet when the average density of almost the whole state of Massachusetts is 419 there must be many parts of the state in which a more extended scale would show marked differences. In the physical maps elevation is shown by contours (see Secs.

42, 43, and 44),* colors, and a delicately shaded mountain plate. The contour intervals in feet are: sea level to 500; 500 to 1,000; 1,000 to 2,000; 2,000 to 5,000; over 5,000. It will be noticed that the contour intervals increase as the elevation becomes greater, that from 2,000 to 5,000 being six times as great as the first interval above sea level. Indeed, there are extensive regions in the world the elevation of which is far greater than 5,000 feet, and many peaks that are from three to four times as high. Each of the regions between contours is given a distinct color to bring out its size, and the mountain shading serves to show the character of the relief, wherever its irregularity is considerable.

Most of the world's population, however, lies relatively near sea level, and there is, therefore, not much need, from any human point of view, that the contours of the greater elevations should be close together. It must also be borne in mind that, as the greater altitudes are reached, the area inclosed by each succeeding contour becomes smaller and smaller, and the difficulties of accurate mapping become so great as to be insurmountable. In the physical map, therefore, as in the population map, absolute accuracy is impossible. It remains, then, to secure such accuracy as is reasonable or necessary, to use symbols that can be instantly identified, and to satisfy those who demand pleasing and harmonious coloring and excellent workmanship. Before talking with the children about them, the teacher will do well to

*All references in this chapter are to the Essentials of Geography, Second Book, unless otherwise stated.

examine all maps by means of a reading glass powerful enough to bring out the smallest areas. Try this with Figure 381 for the smaller areas in Ireland, and the one in northwestern Portugal.

Text Pictures. — The teacher should be thoroughly familiar with the pictures of the textbook. They should be used as constantly and as thoughtfully as maps or text. How different, for example, are the methods of plowing shown in Figures 208, 316, and 505, and the methods of harvesting shown in Figures 12, 201, 209, 266, and that shown in Figure 437. What a flood of light such pictures throw upon the agricultural methods of the different countries! Or again, compare such homes as those shown in Figures 2, 3, 39, 40, 292, 323, 431, 452, 481, 497, 504, 506, 546, 547, and 577 with each other, and see how each one reflects the environment in which it is built. Compare them also with the homes with which the children are familiar, and from the comparisons will come an understanding of some of the limitations under which many of the world's inhabitants live.

The Tables. — The teacher should be familiar with, and make constant use of, the tables in the back part of the book. In several of them, because of changes brought about by the World War, accurate statistics are lacking, but these will be filled in as rapidly as possible.

The Text. — Above all, the teacher should be familiar with the text. Changes such as those wrought by a great war are enormous, but before the results can be accurately measured, years must pass. Year by year, how-

ever, there are other changes which the teacher of geography must take into account. Reclamation dams (Fig. 249) are built, and deserts (Fig. 73) are made fruitful (Figs. 248 and 250 and Secs. 227 to 232 inclusive). A new power dam is built (Fig. 229) and great industries turn to it for power. Valuable mineral deposits are discovered, and new centers of population spring up over night. Largely because of the invention and manufacture of the motor-driven vehicle, Detroit, in ten years, jumped from ninth place among the cities of the United States to fourth place, and the industrial life of many other cities, large and small, was quickened. Because of these and other similar industrial changes, textbooks in geography are constantly undergoing revision. Teachers of this subject should, so far as possible, keep in touch with them.

Emphasis is upon Human Geography. — It is, however, of far greater importance that the teacher should know the big outstanding things in the life of every community—the facts and circumstances that control its industry and give it character. Good teaching will take account of them and of their importance.

In New England, for example, manufacture outranks all other industries both as to the value of the output and as to the number of people employed. Some small part of the raw materials used is of local origin, but most of such materials are brought from a distance. This industry includes the making of textiles, leather, paper, watches, firearms, jewelry, silver and plated ware,

other small metal goods, and wooden ware. The worker in the cotton mills of New England depends upon the cotton of southern United States and that of Egypt. Without the output of New England mills hundreds of clothing factories would be compelled to close and millions of wearers of cotton goods would be inconvenienced.

The woolen mills of New England use the wool of Australia, of Argentina, of South Africa, of Canada, and of western United States. The cloth that they weave may be made into garments in factories hundreds of miles away, and the continued employment of these garment workers depends upon an unfailing supply of this animal fiber. When disease spreads among the Australian flocks and the wool-producing sheep die by the millions and when war prevents the free movement of the world's shipping, the disturbance to industry spreads through the mills of New England, into the shops, and finally into the households of every part of our land.

It should not be necessary to multiply illustrations further. The thoughtful teacher will justly estimate the influence of physical forces upon industry and will give proper emphasis to the part that they play in the lives of mankind. But she will put the greater emphasis upon the work of men. Good geography teaching should make good Americans out of our boys and girls. It should also make them so broadly human in their sympathies that they will look upon work and the world's workers with admiration.

CHAPTER IX

METHODS OF TEACHING GEOGRAPHY

Every teacher worries about methods, the teacher of geography along with the others. The one who has had professional training is haunted by the fear that some professor of education may, unknown to her, be advocating a newer method than the one she is using. The one who has had no training worries because of the fact and is without hope of educational salvation. Both of them may know the subjects that they teach, love and understand children, adapt their instruction to the age and knowledge of the children in their charge, and tie up the work presented with the children's interests—yet they worry. This chapter is written primarily for the comfort of the teacher of geography who worries over methods. After all, it is not necessary that she should do so. A method is merely a way of doing things, and whether it is good or bad depends to a very considerable extent upon whether the results are good or bad. The teacher who can accurately judge the results of her teaching will have an unfailing measure of the effectiveness of the method employed.

The following pages set forth the chief methods that have been brought to the attention of teachers of geography.

Journey Method

Centuries ago, long before the discovery of the New World, when most of Asia and Africa was still unknown, in the days before there were roads, and when nearly everyone lived and died within a stone's throw of the place of his birth, even the best informed depended upon the accounts of occasional travelers for knowledge of the world beyond their horizon. Many of the stories told were based upon the flimsiest of hearsay evidence; others, even less trustworthy, were the offspring of some lively imagination. A few, like the tales of Polo, were remarkable for the accuracy with which they described the physical features and resources of distant lands and the appearance, customs, industries, and beliefs of their inhabitants. Others, like so many of the stories of the elder Pliny, were entirely unworthy of belief. The credulous of the day accepted as truth accounts of inconceivable physical manifestations and of beasts, birds, and monsters in human form of impossible size and of unbelievable ferocity and ugliness. To the known difficulties and dangers faced by the navigators of those early days, imagination had added others so terrible that only the stoutest-hearted sailors dared to venture into unknown waters.

In the course of time travel increased and people first learned to know their nearer neighbors and ultimately to know about more distant lands and peoples. They studied geography by the Journey Method. Even to-day

this method of learning geography has its advantages, as shown in Chapters II and XII of this manual. It is when the attempt is made to teach by imaginary journeys the geography of regions too distant to be visited that the limitations and time-consuming character of this method become apparent.

To lend to an imaginary journey a sense of reality requires that details of traveling must be entered into far beyond any real necessity. Stopping places must be selected, imaginary accommodations provided, imaginary trips taken to places where the children may, in imagination, "see" selected things or industries. What each child "sees" will, of course, depend upon the mental picture created out of past experiences through a combination of ideas suggested by the description given by book or teacher. Such mental pictures, no matter how vivid, are apt to be as individual as the photographs in a family album. To combine them requires that they should be related to the geographic influences that have brought them about or made them possible.

An example will make this clear. It is possible to ask children to take an imaginary journey from the city of New York to a southern cotton field. They may travel in imagination by train or by steamer and train. The appearance of the cotton field may be described to them with vividness and accuracy. They may gain a mental picture of the workers in the fields, they may imagine them singing the songs of their race, and watch them through the day until they go to their homes at night.

Yet they lose much of the true geography of cotton for, in addition to all that has been suggested, the children must learn the conditions under which the cotton grows, the area over which its cultivation is profitable, the part that it plays in the industrial economy of the South, and what becomes of it and its by-products. To appreciate these facts and the relations involved requires much reading and the use of numerous maps. When work of this sort is well done it is practically impossible to maintain the pose of the imaginary journey. What the children most need is a good textbook well furnished with maps and illustrations.

"Sailor" Geography

When the Turks blockaded the overland and Red Sea trade routes between Europe and Asia, the maritime nations of western Europe turned to the sea in search of a new route to the East. This movement resulted in the discovery of a New World and ushered in a period of extensive exploration that ended only with the discovery of the poles. Every one of these early voyages was a gamble with death. The ships then in use were unsuited to deep-sea navigation. They were too small, improperly built, and poorly equipped. They were manned by sailors who feared the unknown terrors of unknown seas. The navigators of the day knew only the shores of the Mediterranean, a part of the west coasts of Europe and of Africa, and some small islands and island groups in the east Atlantic. Even with

handicaps such as these, however, a new world was discovered and expeditions rounded the southern end of Africa and of South America, one reaching the far East by sailing east, the other reaching the same waters by sailing west and circumnavigating the earth. Points on the coasts of new lands and old became important in proportion as they helped to guide the sailor on his way. He learned to recognize the capes, promontories, headlands, islands, bays, and the mouths of rivers. Such names as Lands End, Cape Finisterre, Cape of Good Hope and Cape Farewell are most significant.

The teaching of geography that grew out of this period, and long survived it, placed strong emphasis upon location. Children were expected to name and locate the larger coastal features; the mountain chains, ranges, and peaks; the sources and mouths of the larger rivers; to locate and bound states, to know the counties of their own state and its larger cities, the capitals of the several states and countries, and the location and population of the other larger cities of the world. The method employed was repetition and drill until the desired information was "committed to memory." There could be no other method in the teaching of such "Sailor" Geography, for there was no organizing principle.

Topical Method

Long before the period of exploration had come to a close, there had begun a period of scientific investigation. On the one hand men sought to explain such physical

phenomena as the circulation of the air; the movement of waves, tides, and ocean currents; the origin and movement of glaciers and ice sheets; the formation of river valleys; and the building of flood plains and deltas. On the other hand they were concerned with the operation of these and other forces in influencing the distribution of plants, animals, and people; the development of industries; the location and growth of settlements; and the development of national and international trade. As a result the causal notion was introduced into the teaching of geography. Children no longer compiled and "committed to memory" lists of natural resources, exports, imports, and products.

The natural advantages were found to be the logical result of latitude, altitude, prevailing winds, rainfall, the nature of underlying rocks, the forces that had created or transported the soil, and the character and availability of the mineral wealth. The products were those which were found or could be raised in such a region. The exports were such surplus products as had value in the world's markets. The imports were things not found, not grown, and not made in the country, for which the people found themselves able to pay. Power, raw materials, an industrious population, transportation facilities, and available markets, each played its part in the location and growth of cities.

With this new appreciation of causal relations it is natural that the authors of geographies for children should arrange the topics presented in a way to bring

out these relations. It is equally natural that teachers should present the topics in this reasoned order and that a "Topical Method" should be the result.

Type Method

In recent years there have been added to the traditional "three R's" of the elementary school curriculum a number of other subjects and this enriching of the school course, as it is called, is still going on. Drawing, music, manual training, domestic science and domestic art, lessons in health, in current history, and in Americanism, each claimed some part of the child's school time. Increasing the length of the school day and the school year furnished only partial relief. The teacher of the elementary school still had more to do than she could do well in the time allowed. There followed an attempt to cut down the time given to the older subjects. One well-known educator is reported to have said: "We waste enough time in the teaching of geography to teach a foreign language, when the fact of the case is that we could teach a child all the geography he ever needs to know in a few minutes, when he needs to know it." Others less radical proposed (a) that we should teach our own country in detail and with care, and for the rest of the world select in each continent only the more important countries, and (b) that even in the study of our own country the chief industries should be studied intensively as types in the regions where each is most actively carried on, with only casual mention thereafter.

If the author of the statement quoted above had been alive in August, 1914, it is probable that he would not have complained that the people of our country knew any more geography than they needed to know or have offered to teach them in a few minutes all that they would ever need.

The proposal to select important countries to be taught while others receive no or only casual mention, requires that someone determine which of the countries of the world are to be included in such a list. On what basis was the importance of each to be decided? Should it be size? wealth? population? or the volume and value of their trade with the United States? No matter which of these should be chosen it is quite probable that even so late as the early months of 1914 no one would have included the countries of the Balkan Peninsula as a part of the European list. Nevertheless, it was within the borders of one of these Balkan states that an affront was sought and found sufficient to plunge the world into war. For many years the tragedy of the Balkans has been an important and ever-present problem in the minds of European statesmen even though its small nations may have seemed unimportant to some American pedagogue.

So long as the United States remained a self-centered nation, avoiding "entangling alliances," intent upon the development of its own vast domain, finding ready purchasers for any surplus of foods or cotton, and sellers, quite as ready, to furnish all its needs, it turned its

back upon world trade and was content that others should "go down to the sea in ships." Under such conditions it was quite possible to teach in terms of "types" and to find these types in our own country. It was apparently on the principle that whatever we did was right. It did not seem to matter that at times circumstances made it inevitable that industries fundamentally alike must be carried on in different countries in entirely different ways. The methods of harvesting and marketing wheat in north central United States, for example, are quite different from those employed in northwestern United States chiefly because of climatic differences. In Turkey the methods are different from those used in any part of the United States largely because of the different ways in which the two governments impose and collect taxes. It is obvious that in each of the three regions mentioned wheat growing is for those people an important industry. Its methods are in each case determined by circumstances, and no one of them is a type of the others.

Five years of a war that cut us off, temporarily, from European markets, disrupted our foreign trade, and brought home to us the realization that we were dependent to a very great extent upon ships that fly a foreign flag for the transportation of American goods and American travelers, brought a new point of view. We now know that we cannot afford to be indifferent to what is going on in other parts of the world. We see no reason why we should continue to depend upon a few

great industrial and trading nations to make or gather together the things we need so that we may buy them in one market. We are impressed, at least temporarily, with the danger of allowing our overseas trade to be so largely carried on in foreign bottoms. This new point of view has rendered us a little more willing to try to understand the forces that control the lives and industries of other people. All of this means that in the future the geography of foreign countries must be more thoughtfully presented and with greater sympathy for the problems of foreign people.

Problem Method

In recent years there has been much discussion of what is called the "problem method" of teaching. Those interested in its exploitation believe that it can be applied to the teaching of geography. The problem idea appears to be based upon the belief that children always have in mind things that they want to do and that a good teacher will so manage her instruction that the children will ask questions that are either in themselves problems or that betray an interest that will suggest a problem.

Recently a geography teacher expressed herself as delighted with a question on Mexico which seemed to her to furnish the proper occasion and the necessary introduction to the study of that country. The question was, "Why don't we go into Mexico and clean it up?" It was asked by a young girl whose father had business interests in Mexico and the cleaning process referred to evi-

dently had to do with its conquest by force of arms. It is rather obvious that the point of view implied by such a question would be offensive to the Mexican people and it is undoubtedly true that unless the discussion of such a "problem" was most skillfully handled it might result in unfortunate and unwarranted prejudices and conclusions on the part of the children. Let us assume, however, that the problem is a perfectly proper one. Will a satisfactory answer to it bring out the leading facts in the geography of Mexico? It would seem to depend upon the teacher more than upon the children. The answer might be, "Because we don't want to," "Because it would cost too much," "Because it would be wrong," or "Because the Mexican people will settle their own difficulties if they are given time," or any one of a dozen other answers that would dispose of the question without any reference to the geography of Mexico. The teacher might, however, say "Suppose we (*i. e.* the people of the United States) do wish to 'clean up' (*i. e.* conquer) Mexico, how is it to be done?" Presumably there would be attacks both by land and sea. Such military and naval movements would be for the purpose of acquiring and holding enemy territory, preventing the inhabitants from contributing in any way to the support of their government, controlling all industries and overcoming all resistance. To accomplish these results, what do those who are directing the military and naval operations need to know? It would seem as though it must include at least the following: the position of Mexico in relation

to the United States; the character of the country both to the north and to the south of the international boundary line; the possibility of concentrating, feeding, watering, and munitioning troops in northern Mexico and in other parts of the country as the troops advance; and the possibility of providing and maintaining the necessary lines of communication and of transportation for supplies. These items call for the most detailed knowledge of relief and some information concerning the geological structure of the country. In addition the pupils would need to know the climatic peculiarities and seasonal changes in the different latitudes and altitudes, the surface and underground drainage and water supply, the distribution of population and the regions of industrial activity, existing methods and routes of communication and transportation, and the national ideals. Those directing the sea forces should know the nature of the coast, the location of harbors and of coast defenses, the centers of industry and trade, and the routes by which communication might be maintained between the interior of the country and coastal points.

It seems quite possible therefore to organize lessons in geography around questions or problems such as this. The effectiveness with which it is done will depend in large measure upon the teacher's knowledge of geography and her skill in bringing out geographic relations. It is evident that the children should have at hand sources of information concerning the points raised and most of this will be found properly organized in the maps,

text, and tables of a good textbook. It may be proper to inquire, however, whether the other twenty-four children in the class in which the question was asked had any more interest in Mexico than they would have had in learning about the people of Mexico as interesting neighbors whose lives and industries are influenced by the geographic environment in which they live.

Good Problems. — If the teacher has decided to make use of the problem approach she should take care that the problems proposed (a) can be answered, (b) that the answer to them is worth while, (c) that they require the children to understand the operation of fundamental geographic forces and influences, and (d) that they yield, as a net result, an appreciative understanding of the mode of life, industries, and institutions of the inhabitants of the region studied. Almost universally the better problems in geography lead up to and include this study of people and their activities. As the end and aim of instruction in geography is to account for the distribution and activities of the world's population, every geographic problem in the last analysis is: "What must we know in order to account for the way people live and work?"

Sample Problems.—The following problems selected from different sources illustrate this fact:

1. Why is Belgium more densely populated than any other country in the world?

2. Did the United States make a good bargain when it purchased Alaska?

3. Give reasons why the commerce of San Francisco is not so important as that of New York.

4. Of what value to the countries of Europe are their colonies in other parts of the world?

5. How can you account for the growth of Philadelphia?

6. Explain the density and distribution of population in the United States.

This last problem is very fully outlined in "An Outline of the Course in Geography in the University Elementary School" as a suggestion for work in the seventh grade. The part of the "Outline" from which the following quotation is taken appeared in the December, 1917, issue of the "Elementary School Journal," published by the University of Chicago Press. The work involved in solving this problem is given as follows:

General statement. — The course in geography in the seventh grade consists in part of a review for the purpose of summarizing and clinching the more important geographic principles. This involves gaining much new geographic knowledge as well as recalling and reorganizing many facts already learned. * * *

The review.—The review takes the form of the solution of problems such as the explanation of the density and distribution of population in the United States. In developing the problem, maps are consulted first, and the reading-matter of the text and of supplementary material serves to corroborate conclusions made from map-study and to give additional information.

Since the scope of the review affords considerable choice of problems, the one here discussed is included, not as a rigid outline of subject-matter, but as an example of the kind of work done, the material used, and the type of development stressed.

References below are to Brigham and McFarlane, *Essentials of Geography*, Second Book.

From a population map of the United States, page 49, the striking facts concerning the distribution of population are read. It is seen that the region east of the one-hundredth meridian is, in general, more densely populated than the region west of it; that there is dense population in the west in scattered areas only; that population is densest in the northeast quarter. From a consideration of these facts questions are raised for class discussion such as, "Why should the eastern half of the United States be more densely settled than the western half?"

One reason is found from the maps on pages 104, 105, 122, 136, and 138. These maps show the important regions of production of corn, wheat, cotton, tobacco, and sugar in the United States. From these it is seen that agriculture is carried on in almost all the eastern half of the country, but only in scattered areas in the western half. Why is the agricultural area limited to the eastern part of the country and to scattered regions in the West? By comparison of product maps with relief, isothermal, and rainfall maps, topographic, temperature, and rainfall conditions of the producing regions are found. The amount of rainfall and its distribution relative to the growing season are seen to be important factors in limiting the agricultural regions. The reasons why agricultural regions, as a rule, support more people per square mile than regions too arid for agriculture are discussed. It is finally concluded that one reason for the population in the East being denser than that in the West is the greater amount of rainfall well distributed with reference to the growing season.

At this place the children often raise the question, "Why is there more rainfall in eastern United States than in western United States?" Since the study of cyclonic storms, weather maps, and the causes of rainfall in the United States is a part

of the science course of the seventh grade, the problem is set aside to be dealt with there. It serves, however, to motivate that work.

How does the production of minerals affect the distribution of population? From the maps on pages 82 and 168 and from reading, it is seen that gold, silver, and copper are found largely in the West, and iron, oil, gas, and coal of good quality more largely in the East. The great influence of minerals in bringing population to the West is discussed. The rise and decline of mining communities dependent entirely upon exhaustible supplies of minerals are noted. The great importance of coal and iron in industrial development and in the support of a manufacturing population is emphasized.

How do transportation and power facilities affect the distribution of population? A review of the topography, drainage, and coast line brings out such contrasts and comparisons as the following: Much of the West consists of high mountains and plateaus cut by deep canyons. The highlands are less extensive and less formidable in the eastern half. There are more rivers in the East than in the West. The eastern rivers afford more navigable waterway mileage than do the western rivers. Many western rivers flow in deep canyons and so are less accessible than eastern rivers. Rivers of the Great Basin flow into interior lakes or sinks and offer no highways to the ocean from the interior. The West has no lakes to compare with the Great Lakes of the East. The Atlantic coast line is irregular and affords many harbors. The Pacific coast line is relatively regular and furnishes few harbors. The railroad net of the East is dense, that of the West light. It is concluded that, on the whole, the East offers better transportation facilities than the West. Other things being equal, this tends to make population denser in the East than in the West.

How do manufacturing possibilities affect density of population? From map-study and reading it is found that the principal

manufacturing section is the northeast quarter of the United States, and that factors influencing this concentration of manufacturing are nearness to raw material, command of power, and accessibility of market and labor supply. The reasons why population tends to be more dense in manufacturing regions are discussed and the fact is brought out that manufacturing and commercial population tends to concentrate in cities. From a study of the location of the more important cities the following generalizations are made:

1. Commercial cities grow up —
   (a) Where large-scale collection and large-scale distribution are possible.
   (b) Where mode of transportation is changed on important lines of communication, such as
      (1) Good ocean and lake harbors
      (2) Near mouths of navigable rivers
      (3) At the heads of river navigation
      (4) Junctions of large rivers
      (5) Great bends of rivers
      (6) Falls and rapids.
   (c) Where routes of trade focus, as at
      (1) A river ferry
      (2) A mountain pass.

2. Manufacturing cities are usually the commercial cities, but distinctly manufacturing cities may be located
   (a) Near power resources
   (b) Near raw materials and markets.

The conditions are seen to be conducive to the development of such centers in more places in the northeast quarter of the United States than in the West.

This is by no means an exhaustive list of the questions that arise in the discussion of this problem. Those here cited serve to show the type of procedure followed with any which it seems practicable to discuss.

Care is taken throughout the discussion to observe that in many regions of the West conditions make possible the support of dense populations.

As questions that are not practicable for immediate discussion are asked by the pupils, they are listed where all members of the class may have access to them. Often one member can answer the query of another. Sometimes later reading and discussion answer it. Sometimes the questions afford subjects for later class discussion or debate. Questions that excite strong differences of opinion in the class are sometimes debated by chosen teams. Such a question is, "Which is the more influential factor in determining the location of manufacturing industries, power, or nearness to raw materials?"

Throughout the development of the problem the blackboard outline map of the United States is used almost daily. The pupils are definitely held responsible for the place geography on which each step of the problem is based. They are required to be able to show on an outline map of the United States, such as Goode's No. 9, or No. 10A, the approximate location of the regions of greatest production of each of the more important agricultural products, the more important railroad lines, the mountain ranges and plateau regions discussed, and the more important cities and rivers.

Oral reviews are used to fix, not only facts, but principles. Various geography "spell-down" games are played. Questions are asked that can be answered in a word or a short phrase: for example, "Give an example of a city that has developed on a river at the head of ocean navigation"; "Name a factor important in establishing cotton manufacture in New England."

Population maps of the later census reports are used in reviewing and summarizing the topic. A given area is pointed out on the map and its population is noted in 1890, in 1900, and in 1910. The density of the population and its variation from time to time are accounted for in as many ways as possible. This serves

the twofold purpose of showing the interrelation of the various factors and of discovering some factors not discussed in the general consideration. Moreover, it gives the pupil practice in the reorganization of material.

Problem Method Not New. — From the foregoing it will be evident that the problem as used in teaching geography is not a new method, nor indeed from some points of view, a method at all. As one writer recently phrased it, "the title is used to stress thinking rather than memorizing." The problem is not a panacea; it is to be used judiciously. If carried to excess, so much time is consumed that essential and important facts and principles remain untouched. Carelessly used, it leads into unimportant and ungeographic trifles, and gives children a false conviction that they are learning geography when such is far from being the case. A good problem must stand the tests already mentioned. It must also teach effectively the facts of location and production involved, and there must be a substantial amount of systematic test and drill.

In selecting or formulating problems the teacher should avoid those which are artificial or labored, involving long and roundabout approaches to the needed data and to the conclusion intended. Such lines of approach are apt to be more ingenious than convincing and may lead to much rambling and to futile discussions. Questions like the one on Mexico mentioned earlier in this chapter, involving as it does political and possible partisan treatment, are to be avoided. In other words

problems should be sensible and they should be thoroughly geographic in character.

Problem Method May be Overdone. — No effort should be made to cover all the material of the course by problems. The text should be used essentially in its order, the study being vitalized by the problem approach as some important part of the work is reached in which its use will be effective. No matter how good a problem may be, its proper presentation requires the most careful organization of the supporting facts. Handled in a careless and indifferent manner the results may well be inferior to a careful study of a good textbook enlivened by the contributions of the teacher and the help of supplementary reading. Throughout all purposeful instruction there is constant demand for a good memory and the children will usually find their best aid in this respect the constructive order of a good textbook. Without such an orderly arrangement of geographic facts and materials the pupil is confused and many teachers are puzzled and hindered. The Massachusetts Teachers' Manual of Geography sounds this warning: "The problem method must not be overdone, however, for no matter how valuable the problems they do not obviate the necessity of thorough drill in locations and in other phases of study which demand careful memory work."

Selection of Problems. — No specific set of problems to fit all needs can be given. Their selection must vary with the point of view of the teacher, the geographical

resources of the environment, and the library and map equipment available. In the majority of graded schools, even in those that are supposedly well supplied with teaching materials, there is little to help the teacher of geography except the textbook, a few maps, the home environment of country, village, or city, and a few reference books more or less out of date. The problems given in the next chapter of this manual are therefore set forth by way of suggestions and are, in the main, such as may be answered from the materials to be found in the textbook. The teacher should expand these problems and propose others according to her own experience and in view of such added literature as she may secure.

No One Best Method.—In the presidential address given before the National Council of Geography Teachers in Chicago, December 29, 1920, Professor Whitbeck, discussing "Thirty Years of Geography in the United States," and speaking of geography teaching in elementary schools, said: "The prevalent method of teaching has changed somewhat. We have had the Journey method, the Topical method, the Map Drawing method, the Type Study method, the Problem method, and the Project-Problem method. None of these has proved itself worthy of general use. Each of these methods has contributed something of value to the general method of teaching geography, and yet to-day there is no one approved method. At present a good deal of attention is being paid to the problem or project method. This too is a contribution of real value, and when this new idea

has passed and given place to some other, it will leave the pedagogy of geography better because it existed. The plain fact is, there is no one method of teaching geography which a majority of teachers agree is the best. In the field of elementary geography . . . the gain of the last thirty years is mainly the gain which has come through superior textbooks written by trained geographers."

Natural Regions

Modern geography takes account of natural regions and their influence on life, and in the Essentials emphasis is placed on the physiographic regions of the United States in the treatment of the United States as a whole. (Secs. 45–56, Second Book.) In elementary geography it is, for many reasons, very desirable that the study of historic political divisions should be put in the forefront, although care should be taken to show how these divisions such as states, state groups, and countries are made up as regards the natural regions or the units of their physical geography. In the Essentials, Second Book, each group of states is so presented that the children will learn what natural regions are found within its borders and how these have affected the human activities.

The historical and distinctly human influence upon the life of a region is, at times, greater than that of physical conditions. It must also be remembered that unity of land form may be accompanied by much diversity of

climate, as in the Appalachian highlands of the North and the South. Lines of trade and strong human fellowship cross, in many places, the lines of physical unity. This is particularly true in the eastern or Atlantic coast Appalachian regions. The Lake Plains of western New York, the Mohawk Pass and its great routes of travel, and the stock farms of the New York plateau, all tie themselves to the coastal lowland at the city of New York. On the other hand, the plateaus of Pennsylvania and West Virginia belong historically and industrially to Philadelphia, Baltimore, Norfolk, and Newport News, most of which are on the Atlantic Coastal Plain.

The question of relative emphasis on regional and political study could not be better stated than in the following from the Massachusetts Teachers' Manual of Geography: "After the natural regions are thoroughly understood the pupils should begin the study of the political regions, which should receive much the larger share of the time allotted to geography."

In the Essentials of Geography the teacher will find that the natural regions of the United States and other countries are clearly set forth. In the presentation of state groups she will note that the various parts of the states are referred to the larger units already studied (see Section 102, Sections 132–133, Sections 152–153, 158–159, etc.), followed in each case by a full development of the human consequences resulting from the influences of the forms and conditions of nature.

CHAPTER X

PROBLEMS IN GEOGRAPHY

Below are given some problems in geography which the authors hope may prove helpful to teachers who are desirous of using this means of stimulating interest in the work. It will be understood, of course, that no attempt has been made to give, for any region, a series of problems so complete as to cover its entire geographical treatment. They are intended as suggestions only. Teachers who are successful with the method will have no difficulty in thinking of many more problems than they will have time or reason to use.

All of the better problems in geography are based upon facts or conditions more or less well known to the children, and the skillful teacher will see that the problems are so phrased that their solution calls for an explanation of these facts or conditions. Such an explanation can be given only after all modifying circumstances have been thoroughly examined. As, therefore, a problem cannot be fully appreciated unless the conditions that gave rise to it are kept in mind, the first problem given below is very fully outlined by giving (1) a statement of the problem, (2) a statement of the conditions upon which the problem is based, and (3) suggestions as to the materials that are given in the

Essentials that will help the children to find the answer sought, and as to the ways in which these materials may be used. A number of other problems are more briefly presented, and some are merely stated. All references are to Essentials of Geography, Second Book.

No. 1 — Influence of Relief on Occupations

Problem. — "In what ways may the occupations of the people of North America be influenced by its relief?"

Statement of Conditions. — The complaint is sometimes heard that children are not interested in the study of relief or of climate as such. It is said that many teachers stress the facts concerning physical features and forces too largely by and for themselves, and that little or no attempt is made to show the children how these physical influences function in their lives. The most vigorous critics of this alleged over-emphasis of physical geography in the grammar grades do not deny its influence upon life and industry, but they ask that its teaching be justified on the basis of that influence. In the problem here considered the children are asked to seek such relations.

References and Suggestions. — Turn to Figure 13, Second Book. Have the children notice that most of North America west of the 100th meridian is a region of highlands; that the lowlands include narrow coastal plains, a few river valleys and the Puget Sound region, and the lowlands of Alaska and the Northern Plain; and that such terms as Plain, Valley, Plateau, Mountain,

Range, and Peak appear on the map. Compare the broad central region with the same area shown in Figure 58. Have them notice that in this map many more peaks and ranges are shown. Call their attention to the delicate shading that indicates the mountain slopes and have them find the Grand Canyon of the Colorado River. The teacher should make use of pictures in the textbook, asking the children to turn the pages rapidly to find those showing, for example: plains (Figs. 12, 78, 185, 190, 201, 434); mountains (Figs. 68, 70, 238, 256, 262); and peaks (Figs. 15, 69, 236, 260, 261, 276, 312). Study in the same way the Appalachian Mountains, the Atlantic Lowland, and the Great Plains. Use Sections 14, 47, 48, 49, 50, 51, 53, 54, 55, 283, and 298.

Agriculture. — Have the children make a list of the chief occupations in which the people of North America are engaged. This list should include agriculture, dairying, grazing, mining and quarrying, lumbering, fishing, manufacturing, trade, and transportation. If they have difficulty in making up this list, have them run rapidly over the pictures in the textbook from page 7 up to and including page 215. Other conditions being favorable, which of these industries should be looked for on plains, broad river valleys, and on the lower and gentler hill slopes? Let the children suggest some of these other conditions that must be favorable, for example, temperature, rainfall, soil, and drainage. In what ways do the surface features of North America influence its temperature? The children will undoubtedly have in mind that

temperature ordinarily decreases with elevation. Assuming that the average decrease is 1° Fahrenheit for 300 feet in elevation ask them to determine the difference in temperature between places at or near sea level and those 5,000, 10,000, or 15,000 feet above sea level. See Sections 26 and 27. If moist winds from the Pacific Ocean blow across these western highlands, what will be the effect upon the temperature of the air, and what will happen to the moisture that such winds contain? Use Figures 33, 367 and 72, and Sections 60 and 61. Turn to pictures of regions of high altitude showing snow fields and glaciers (Figs. 32, 38, 69, 70, 276, 300, 312), and use Section 30. Have the children answer such questions as: "Can crops be cultivated or forests grow in regions of perpetual snow?" "Why are trees not found above the timber line shown in Figure 68?" "If an average rainfall of twenty inches is generally necessary for the cultivation of crops in regions where there is neither irrigation nor dry-farming, over how much of western United States could crops be grown if all other conditions were favorable?"

Location of Chief Crop-Growing Regions. — Have the children study Figure 81 and answer such questions as these: "What are the chief crop-growing regions shown?" "Which of these extend into Canada?" Compare this map with Figure 58. What is the physical character of the larger agricultural regions of the United States and of Canada where these regions extend northward across the international boundary? Com-

pare also Figures 58, 72, 162, 164, 189, 207, and 211 for the influence of temperature and rainfall upon particular crops. Have the children read Sections 139, 141, 164, 165, 183, 184, and 187. Again use the pictures of the text to show (1) wheat raising in Canada (Fig. 12), in the Dakotas (Fig. 201), in Nebraska (Fig. 209), in Colorado (Fig. 67), in Washington (Fig. 266), and in Wyoming (Fig. 251); (2) corn (Fig. 212); rice (Figs. 61 and 190); tobacco (Fig. 192); cotton (Figs. 163, 180, 185, 186, 198, 199); sugar (Figs. 187 and 188). Pictures will help the children to realize that mountain slopes have thin soils or none at all and that undrained swamp lands have little agricultural value (Figs. 70 and 154).

Lumbering. — Mountains, where not too high, favor the growth of forests (why?) and their preservation from too rapid clearing (why?). They may therefore become places of permanent lumber industry or forest reserves (Fig. 244). (See Secs. 93, 48, 136, 246, and 253; also Figs. 16, 64, 65, 101, 102, 104, 105, 160, 236, 270, 271, 303, and 317.) Many lowland regions are still covered with forests, and others once covered have been partially or wholly cleared and brought under cultivation. See, in addition to the above, Sections 168, 204, 224, 262, and 289. Use Figures 152, 161, and 193.

Mining. — Many minerals occur mostly in mountain regions. (Fig. 253, Sec. 235.) Using Figure 81, identify the states where gold, silver, and copper mainly occur. What are the surface features of these states?

Manufacturing. — Streams in mountainous and hilly countries are frequently interrupted by falls or rapids, as are also streams passing from highlands to plains. Such falls have determined the location of many settlements and they have been used or dams have been constructed to furnish power for the development of manufacturing industries. See Sections 87, 118, 132, and 147, and Figures 88, 119, 132, and 229.

Transportation. — Use Figures 81 and 82 and compare with 58. See also Figures 298, 299, and 311; Sections 122, 126, 173, 214, 215, and 216; Figures 121, 138, 145, 172, 199, 206, 232, 233, 234, 235, 239, 278; and Tables 2 and 4, page 413.

Summary. — It appears, therefore, that agriculture is influenced by temperature, rainfall, soil, and drainage; that temperature is influenced by altitude and the nearness of large water bodies; that the amount of rain is dependent upon distance from the sea, the relation of elevated areas to the prevailing winds, and upon altitude; its form as rain or snow, upon the latitude and altitude of the region in which precipitation occurs. Further, it appears that, moisture supply and temperature being favorable, crops can be most readily grown on the deep, well-drained, fertile soils of plains, of valley bottoms, and low and gentle hill slopes. The conclusion will be reached that the largest untouched forests will be on the less accessible slopes of well-watered hills and mountains and in lowland regions that have poor soils, are ill-drained, or are in regions the usual temperature of

which is too low for profitable agriculture. Certain mining regions will be found where rocks have been greatly disturbed and certain manufacturing regions where there are streams in which falls or rapids occur. Inland water transportation will be found in well-settled regions on large lakes and on rivers of permanent flow, sufficient depth, slight current, and few or no obstructions. Railways will cross lowlands in straight lines, follow winding river valleys, and seek out the lowest or most available mountain passes.

No. 2 — Internal Trade of the United States

Problem. — "Why may we expect the people of the United States to have a very large domestic commerce?"

Table 1, page 412, Area and population of United States. Figure 80, Distribution of population with average per square mile for each state. Where are the people who must be fed, clothed, and housed? Section 74. Where are the great food crops grown? Figures 81, 189, 207, 211, and Sections 164, 165, 182, 183, 184, 185, and 187. Where prepared for market? Sections 186, 187, and 188. Where are the food animals raised? Dairying and dairy products, Figure 218, Sections 110 and 190. Cattle, Figure 217 and Sections 167, 192, 193, 194, and 225. Swine, Figure 216. Sheep, Figure 246 and Sections 191 and 226. Where are they prepared for market? Section 195, Figures 219 and 225. What raw materials raised within the United States are used in the manufacture of clothing and where are they pro-

duced? Cotton, Figure 164 and Sections 141 and 163. Wool, Figure 246 and Section 226. Manufactured, Sections 88, 89, and 143. Leather produced, Section 196; manufactured, Section 90, etc. Treat in a similar way as to producing and manufacturing regions, forests and lumbering, iron ore deposits and the steel industry, petroleum and its derivatives, fish and fish canneries, and vegetables and fruits. In conclusion have the children see that products representing all of these (and other) industries are to be found in nearly every part of our country. How did they get there? Figure 82 and Sections 214, 215, and 216.

In this, as in all problems, the teacher should make constant use of pictures as well as of maps and text. If the class is divided into committees, each with a chairman to direct the work, much may be accomplished in a short time, although the final reports of all committees should be presented to and discussed by the whole class. When time permits, such problems as the one just outlined should be enlarged to take in a brief survey of world conditions. When this is done the maps and statistics on pages 403 to 410 inclusive and the table on pages 414 and 415 will be found very helpful.

No. 3 — Relation of Growing Season to Products

Problem. — "To what extent does the length of the growing season influence the crops produced in eastern United States?"

Study carefully Figure 71 and read Section 59. Note

that the Atlantic Lowland (Sec. 47) extends from Maine to Florida and that the growing season varies from 150 days in southern Maine to more than 260 in Florida. Compare the products of Maine and Florida. Taking the true Coastal Plain (Sec. 47, first paragraph) it will be noted that there are 180 or 190 days in New Jersey, as compared with the more than 260 in Florida. The products include peaches and strawberries in one and pineapples and oranges in the other. The length of the frost-free period in each region is largely due to latitude and relation to the sea. How will such differences in temperature and the resulting differences in products affect the lives and industries of the inhabitants?

Compare the Northern Appalachians with the Southern Appalachians. How does the frost-free season on the borders of New York and Pennsylvania compare with that in the mountains of North Carolina, South Carolina, and Georgia? What differences are noted in the forest cover?

In crossing Virginia or North Carolina from the east, the traveler passes over the Coastal Plain (Sec. 132), the Piedmont (Secs. 47 and 132), and the Appalachian Mountains. The growing season changes in length from 230 days to 180 or less; note the change in crops (Sec. 134) and other vegetation.

Emphasize the conclusion that climate, and therefore crops, are a composite result of latitude, altitude, and relation to bodies of water. Further illustration of this last-named influence is found in the contrast between

the plateau dairying in southwestern New York on the Pennsylvania border and the peaches, grapes, apples, and wheat on the Lake Plains near Lakes Erie and Ontario.

No. 4 — New England Cities

Problem. — "Account for the location of the New England cities."

How many are there? Make a list of those found on pages 416 and 417. On Figure 84 locate those found in the list. Are there any on land over 1,000 feet in elevation? Are there any where the altitude is between 500 and 1,000 feet in elevation? (Pittsfield.) Most of them are in regions less than 500 feet above sea level. Using the scale of miles (Figure 84), determine as nearly as possible how many of the New England cities are within 50 miles of the main shore line of the Atlantic Ocean. Find the cities on the sea border or on tidal sections of rivers. (Use Secs. 81, 98, 99.) For New England pupils added emphasis may be given to the last question by asking them to collect supplementary material dealing with the industries of the cities on the tidal sections of New England rivers. The same thing may be done for cities whose development has been determined wholly or largely by water power.

The most general conclusions are that nearly all of the cities of New England are:

On low land and in the region of the mildest New England climate,

On or near the sea,

Where power is available,

In the midst of farm lands suited to intensive agriculture.

They are all well located to receive supplies and ship their manufactures and carry on trade. Compare northern and southern New England on Figures 80 and 81.

No. 5.—New York Central and Pennsylvania Routes to the West Compared

Problem. — "Compare the advantages of the New York Central Lines, New York to Buffalo and the West, and the Pennsylvania Railroad, New York to Pittsburgh and the West."

Use Figure 115 and Sections 122 and 126; also, for the great city terminals, Sections 121, 123, 125, and 127. Study the altitudes and grades of the two lines. The two routes are given in Sections 122 and 126. Note that the highest altitude on the Central from New York to Buffalo is between Rochester and Buffalo; Section 102, last paragraph, explains the flatness of even this section. Observe the lowland course of the Pennsylvania from New York to Philadelphia and Philadelphia to Harrisburg and along the Juniata River. Note the rise over the plateau beyond Tyrone and Altoona (Sec. 126, last paragraph). Using the scale of miles make an approximate comparison of the length of these routes. Consider the relative advantages of Buffalo and the Great

Lakes, and Pittsburgh and the Ohio Valley, as western outlets for eastern lines.

No. 6 — State of Ohio

Problem. — "What advantages in resources and situation has the state of Ohio?"

The productions of Ohio may be inferred from Figures 207, 211, 216, and 217. Consider the rainfall of Ohio (Fig. 72), and the growing season (Fig. 71). What mineral resources has Ohio? Consult Sections 199 and 201 and Figures 127, 81, and 129.

As to the situation of Ohio: It was in the track of the great Western migrations (Sec. 175). It is bordered on the south by a great navigable river (Sec. 173). It has Lake Erie on the north, connecting with all the Great Lakes,—for example note iron ore routes (Fig. 222).

As to results in industry and population: It is crossed by several trunk line railroads, Figure 82. There is much trade on the Great Lakes through a series of lake cities, including Cleveland and Toledo, Section 208. Ohio River traffic and the city of Cincinnati, Section 211. Other large cities, Section 212. Greatest density of population west of Pennsylvania, Figure 80. A great manufacturing state, Figure 81.

Other states may be studied on a similar plan. The teacher should observe that the text, maps, pictures, and tables of the Essentials afford much material for such problems, while easily available supplementary material will extend the inquiry to any desired fullness.

No. 7 — Chicago

Problem. — "What geographic conditions have helped to make Chicago the largest interior city of America?"

Was the site of the early settlement attractive? (Sec. 9.) Study the reference to trading posts on the Great Lakes (Sec. 175). In this connection turn to Figure 29 to observe how nearly the upper branches of the Illinois River reach to Chicago. Using Figure 81, observe that on one side of Chicago are the Great Lakes, and on the other side, the principal producing areas of corn and wheat as well as important regions of coal production. Using Figures 216 and 218 note the relation of the animal-producing areas to Chicago. On Figure 222 trace the iron route leading to the head of Lake Michigan. On Figure 81 it will be noted that the largest and most compact areas of food production in the United States surround and are naturally tributary to this city, while the great manufacturing region of northeastern United States stretches between this city and the Atlantic seaboard. What cities are the gateways for most of our trade with Europe? After reading Section 205, explain the development in Chicago of the important industry to which reference is made. What point on the shore of Lake Michigan would the railroads of northern United States, from Puget Sound, the wheat fields of Washington, the mines of Montana, the wheat fields and cattle ranches of the Dakotas, and the mills of Minnesota be sure to touch as they rounded the head

of the lake on their way east to the Atlantic seaports? What might be reasonably expected in regard to the railway net in a rich agricultural country such as surrounds Chicago? Examine Figure 82. What commodities would reach Chicago cheaply by the Great Lakes? What western products reaching Chicago by rail might profitably be sent eastward by water transportation?

No. 8 — Iron and Steel Industries of the Great Lakes Region

Problem. — "Why are so many of the cities on or near the Great Lakes engaged in the manufacture of iron and steel goods?"

What percentage of the iron ore mined in the United States comes from mines tributary to the Great Lakes? (Page 409.) What are the three leading states of the United States in the production of pig iron and what percentage of the total product do they furnish? (Page 409.) Consult Section 127 to learn what materials are required in making iron out of the ore. Is the needed fuel found near Lake Superior? Does it occur in the states that make the most iron? (See Figures 81 and 127 and consult Section 127, third paragraph.) Turn to the population table, page 413, to ascertain how large a part of our population lives in the New England States, the Middle Atlantic States, and in Illinois, Indiana, and Ohio. Consider the number of cities in these states, the thick railway net (Fig. 82), and think of the uses of iron and steel in modern building, in the construction of rail-

way tracks and equipment, and in the manufacture of automobiles, steel furniture, farm machinery, etc. What, then, are the reasons for making iron and steel goods in the cities of the Great Lakes region or tributary to it?

The conclusion will be reached that it is better to take the iron ore to the coal and to the neighborhood of the great markets by low-priced transportation on the Great Lakes, than to take the coal to the ore beds and manufacture the iron far from the larger markets.

This problem may be expanded to include the conditions at Birmingham, Alabama, for comparison of methods, output, and markets. A similar problem may be used in teaching the iron and steel industries of the leading centers of production in Europe.

No. 9 — Climatic Contrasts

Problem. — "How does the climate of Seattle or Portland (Oregon) differ from that of Minneapolis and St. Paul? What are the reasons for the differences?"

Using Figure 46 compare the latitudes of the selected cities. (Seattle's difference of about 2½ degrees is not sufficiently serious to affect its temperature.) Compare the January temperatures, Figure 365, and the July temperatures, Figure 366. It will be noted that the Pacific coast cities are much warmer in winter and cooler in summer than Minneapolis and St. Paul. Using the same maps (Figs. 365 and 366) observe the direction of the winds on the Pacific coast, southwest in winter,

northwest in summer, but always from the ocean toward the land. Study Section 27 and give the reason for the more even temperature of Seattle and Portland. Study Figure 58 and decide whether there could be enough difference in altitude to affect temperatures perceptibly. How do the Pacific cities compare with Minneapolis and St. Paul in rainfall? (Fig. 72.) Why the difference? Study Sections 27, 60, 181, and 251. What type of climate have Seattle and Portland? What word describes the climate of Minneapolis?

This problem may be made more comprehensive by including the effect of the climatic differences noted upon the lives of the inhabitants of these cities.

No. 10 — The California Valley

Problem. — "Account for the differences in population between the northern and southern parts of the California Valley."

Read the description in Section 247. Using the scale of miles find the length of the Valley as shown on Figure 259. Verify by the difference in latitude between its northern and southern ends. (Fig. 259, Sec. 569.) What is the range of altitude of the great floor of this Valley? (Fig. 259.) The name Great Basin of California has been suggested for this region. Why? Examine Figure 71 for length of growing season at opposite ends of the Valley. Does the same difference in latitude make a greater difference in the length of the growing season along the Atlantic Coast? Why? Do the same

thing in the Mississippi Valley. Does the nearness of the ocean have anything to do with the uniformity along the coasts? Using Figure 72 note the difference in rainfall between the Sacramento and San Joaquin sections of the Valley. Studying Figure 81 (Sacramento district) and Section 252 compare the soil products in different parts of the Valley. What parts of the Valley require the most extensive irrigation? (Figs. 72 and 250.) Why would ranches be common in the Sacramento Valley and compact settlements in the San Joaquin Valley? (Sec. 232.)

No. 11 — World Distribution of Corn

Problem. — "To what other countries in the world has the successful cultivation of corn spread?"

In what states does our own corn-raising region chiefly lie? (Use Figures 81 and 211 and Section 187.) What states outside the area of greatest production raise a considerable amount of this grain? (Fig. 211.) What is the character of the surface and of the soil of the corn-growing region? (Sec. 51.) Why does not corn culture extend farther west? (Fig. 72 and account of Great Plains, page 38.) Compare Figure 211 with Figure 207 and explain the greater extension of wheat toward the north and of corn toward the south. (See Section 187, concerning corn in a cool climate.) Compare the world maps, Figures 593 and 594, and note the differences as regards latitude in the distribution of these crops. Consult the index under the heading Corn. Keeping in

mind its American origin use the index and Figure 594 to note the other parts of the world where corn is now raised. Compare the regions of corn production with the areas of swine and cattle raising in the United States. (Figs. 216 and 217.) Many dairy cows, however, are found outside the corn region. (Fig. 218.) Why? On the corn or swine map in your textbook locate in pencil the chief meat packing centers named in Section 195.

Other Problems

12. Why should the water powers of the United States be conserved and used as fully as possible?

13. In large desert regions there may be nomad tribes, great stock ranches, or populous and closely settled communities. Explain the possibility of such contrasts.

14. Why has South America a desert on both its east and west sides, while Australia has a coastal desert only on the west?

15. Why is the population of the central highlands of Asia so small?

16. Of what advantage is it to Great Britain to maintain a great merchant marine and a large navy?

17. Why, as a result of the World War, may we expect the output of industrial Germany to be greatly lessened and its industrial development to slow down? Same for Austria.

18. Of what value to Great Britain are its dominions, colonies, protectorates, etc.?

19. What is for the Italians the most profitable of the occupations carried on in Italy?

20. Compare cities: (a) For their climate and its influence on the industries of the surrounding regions and the lives of the people (Montreal and Venice). (b) For the conditions that contributed to their location and to their growth. (c) For their trade, both foreign and domestic.

The teacher using the problem method should make full use of the textbook, and set the children to looking up other material only when that is necessary. In the teaching of geography she has a unique opportunity to show them how to study and how to make intelligent inferences from the materials provided for study. Such intelligent inferences, however, are very different from the "guesses" forced upon the children by teachers who make it a practice to assign to them as problems, questions for which in the nature of things no answer can be given. If the problem is to be used, it should be one that is as little controversial as possible and one for which a definite answer can be found from materials readily available to teachers and pupils.

CHAPTER XI

THE USE OF PICTURES

Maps Fundamental. — The fundamental and indispensable illustrative material in geography is the map. However imperfectly, the map brings before the eye large regions, and it is the only means by which this end is accomplished. All students of small or local areas or places, even trained geographers, are dependent on the map to give them the relations and setting of the locality chosen for observation or intensive study. In other words the map is the sole visual instrument for the study of distributions, and distribution is the essence of geography.

All other illustrative materials find their place in filling in and making truthful the general picture afforded by the map. One may travel widely over a country or a continent, enriching his knowledge in detail, but he must come back to the map to correlate the visual facts and make a coherent whole.

Value of Pictures. — The same principle applies to pictures. Without constant recurrence to the map and the text, the impressions gained from them become a heap rather than a structure. The picture, therefore, while rich in the help it gives, cannot be the basal agent in the teaching of geography. It is, however, when

wisely used, of vast service, because the pictures can be drawn from all parts of the world, and therefore give images of things that cannot possibly be seen by any one traveler. The importance of this fact is seen when we remember that most pupils and many teachers have perhaps seldom gone beyond the boundaries of their home state.

It is not here denied that poring over geographic pictures in an aimless way, or for mere entertainment, may be of much benefit to children. One of the authors of this manual recalls an old-time geography which he never used as a text, but found and made his companion in his childhood. He made comrades of the crude woodcuts, copied them in rude pencil drawings, and gained indelible and essentially truthful pictures of life that was strange to him.

There were pictures of Harvard University, a Maine lumber yard, a raft on Lake Champlain, boys by a country schoolhouse watching a covered emigrant wagon as it moved westward, the battle of Trenton, negroes and an overseer in a southern cotton field, the making of tar in a dark southern forest, a river steamboat loading with cotton, the catching of wild horses on a Texas prairie, the felling of a tree by a western log cabin, early settlers attacked by Indians, Tennessee iron works, and the Cumberland Mountains. These and many others made a profound impression; and in a time when there was no book of pedagogy and no nervous anxiety for short cuts toward vocational activity,

without direction or classroom discussion, the roots of geography were being planted in a youthful mind so deeply that in a rediscovery of this old Mitchell Geography many years later, the pictures brought greetings as of early friendship.

This reference is not to argue against the thorough and considered study of pictures, but to remind us that even rough representations of people doing useful things in a remote or unfamiliar environment may have an abiding influence upon the imagination and mental furnishing of children.

Intensive Use of Pictures.—To gain substantial and continuous results, however, the teacher must regard pictures as an integral and important part of the materials of instruction. Otherwise even the pictures in the text are often passed by carelessly in the preparation of the lesson. The text pictures are indeed particularly valuable, for two reasons: first because of their rigid selection for appropriateness and teaching quality; and second because a duplicate of each subject is in the hands of every pupil in the class. Hence it can be taken up in the forecast of every lesson or every topic. It may also be made the basis of laboratory study, with written notes in answer to an informal or a formal series of questions.

It may be questioned whether many pictures should be permanently displayed on the walls of the classroom. With pictures as with maps there is danger that constant display may make them stale and ineffective for

impression. This does not apply to having a few views of large size and exceptional splendor, as of Niagara, the Grand Canyon, or a scene among the Big Trees or in the high Alps.

Stereoscopic Views. — Stereoscopic pictures have special advantage if available. The teacher may profitably consult a short article by Professor Jefferson, — "Stereoscopes in School," in "Journal of Geography," VI, Dec., 1907, 151-156. The writer emphasizes the gain of the stereoscopic perspective, in contrast to the monocular effects produced by the ordinary camera. The stereoscope gives the depth and realistic effect of seeing the landscape or the object with two eyes.

The difficulty with the stereoscope is in the expense of duplicating the photograph and the instrument for simultaneous use by a school division. Nevertheless the single instrument, or an outfit of two or three, may be made useful by rotating their employment by pupils, in connection with careful directions for study.

Collecting Pictures. — Such rotation, or passing about in the class, is of course necessary with all small pictures gathered from miscellaneous sources, such as railway and steamship folders, hotel advertisements, illustrated magazines, and the picture sections of the daily papers. Pupils can often be interested in making collections of pictures for their individual notebooks, or in gathering such material for school collections.

This work involves labor, and care must be taken to minimize the time and energy which may be called for

on the part of the teacher. Especially is this true of any system of filing for future reference. Large envelopes of uniform size offer the simplest means. Pictures relating to a special commodity, country, or other unit of study may be put into a single envelope, bearing its appropriate label. Pasting in scrap books involves too much time and labor and the material is less flexible in its use.

The Stereopticon. — There is no question of the great value of the stereopticon and the lantern slide for class instruction. The chief difficulty is that of expense, which in many schools is as yet prohibitive. This objection should not hold, however, in city systems. Excellent results have in some instances followed upon the installation of lanterns and standard sets of slides. Where formerly efficiency, as shown by tests, had progressively diminished as the field of home geography gave place to other states and countries, it was found that poor students and poor teachers gained greatly in results through the application of the visual principle. The wider recognition of the lantern as a valuable adjunct in geography teaching will no doubt in the future contribute to larger and cheaper production of the slides and the projecting instrument. In several states there are state-owned collections of selected slides which are loaned to all teachers who have lanterns available. Is your own state one of these?

Moving Pictures. — The moving picture is especially well adapted to vivify certain phases of geographic

instruction. This is especially true in subjects involving interesting and important processes and serial changes. Under this head come such successions of change as from the wheat field to the flour mill, the ore pit to the steel mill, sugar from an Hawaiian or Cuban cane field or a Colorado beet field to factory, refinery, and market.

Here belong also such dynamic forces and changes as go with wave action on a sea shore, or the eruption of a geyser or a volcano. The irrigation of a field, the progress of a forest fire, the costumes, expression, and movements of foreign groups of people, are further examples of dynamic or vital scenes which lend themselves to this mode of presentation and emphasis. Unfortunately there are few films of any sort proper for schoolroom use. Teachers await the production of films suited to the needs of the classroom. Their production cannot be long delayed. The call for them is clamorous, the need genuine, and the field limitless.

The expense and technical experience involved make it necessary for the ordinary teacher to await a general movement, in the city system of schools or in the country or rural district of superintendence. The teacher, however, should be ready to avail herself of such opportunities and use them for awakening interest and fixing impressions in geography.

If on the alert for opportunity, the teacher will occasionally be able to direct her pupils to attendance upon some film of geographic value, that more or less accidentally will be shown in the moving picture houses.

Cautions. — The teacher, however, should be on her guard against exaggerated claims in the field of visual instruction. Serious attention need not be paid to the enthusiastic assertions that pictures are about to revolutionize our education, or that three fourths or four fifths of the education of the future is to come through so-called "eye mindedness." It should be considered how far the urgency used may be due to commercial interest and how far it arises from disinterested conviction as to a new avenue of educational progress.

Visual impressions, highly valuable as they may be, used as they are by the best teachers of mature geography, promising as they are for future help, can never be a substitute for the discipline of the memory and the reason, based upon the text, the supplementary literature, and the discussions and explanations of the classroom. The accurate and vivid fixing of attractive visual images supplies material which teacher and pupil will work over, in the course of their serious and ordinary tasks. Otherwise the picture may become a somewhat sensational and dissipating feature leading both teacher and pupil into false notions of what they are gaining by its use.

Suggestions. — A few sample suggestions will be given regarding possible uses of pictures in the Essentials of Geography. Unless otherwise stated the illustrations here noticed are found in the First Book.

In most regions the roads, houses, and villages will be found on the lowlands, along the course of valleys. The

adjoining slopes are occupied with pastures and tilled fields, while the wood lots are apt to be left on the hill-tops. If there be mature mountains, but not of Alpine heights or great ruggedness, they are commonly covered by continuous forest. Verify these principles of common human occupation and natural conditions by using Figure 158. The subject is Mount Greylock, in western Massachusetts. Bring out the ease of transportation on lowland roads, the facility of cultivating fields of low gradient, the greater exposure and the thinness and poorer soils of the mountain slopes and summits.

Observe next the parallel conditions in the southern Appalachians as seen in Figure 194, and in southern Germany, as exhibited in Figure 317.

There are many examples of serial groups, illustrating several parts or progressive stages in the winning of a product or in carrying on an industry. While these are naturally tied together by the correlated text, some gain may be had by attending especially to the serial relation of the pictures. Pages 20–21 afford an example, in presenting pictorially, the round-up, the stockyard, cutting up, and loading. It is not far to pass in thought, back to the pasture and forward to the market. Figure 233 may also be brought into relation with Figure 38. Figures 269, 272, 293, and others may be used as desired, to extend the comparison of regions and methods.

Similar use may be made of the groups on lumbering, pp. 22–23, and mining, pp. 24–26. In both cases, as before, many parallel but varying exhibitions of the same

great groups of processes will be readily found in the Essentials of Geography, First Book, and if it seems desirable, by consulting the Essentials of Geography, Second Book.

Perhaps no theme will yield a larger assortment of related but divergent material than the subject of transportation. Consult pp. 38–44, with Figures 71–85 and 87. Here and by easy reference we shall find vehicles of various forms of propulsion, suited to various surfaces, media, or uses. There will be carriages and trucks drawn by horses, motor trucks, trains propelled by steam (Figures 75, 236, 249), electric cars, airplanes and dirigibles, ships in canals, a ship behind a breakwater, sail boats, and ocean liners. Other related features are locks, wharves, lighthouses, and a bellbuoy. It is not here advised to anticipate all these materials at the first introduction to the subject. This will be subject to the wisdom of the teacher, and perhaps may come most profitably later in the study, when many elements of the subject have been traversed in detail. Yet other items pertaining to such a survey are found in Figures 73, 74 (roads), Figures 93 and 148 (iron rails), Figure 101 (city pavement), and Figure 136 (dog sleds).

A very full set of serial views is found in connection with wheat, taking wheat raising, harvesting and marketing, and flour, in their numerous phases. Note distribution on map Figure 221. Then go back to Figure 30 (gang plow), Figure 31 (grain drill), Figure 33 (harvesting — compare Figures 267, 292, and 339). Then

comes threshing, Figure 32. One might go forward to Figure 268 and bring out the fact that similar elevators are found by the railways in our own wheat regions. See Figure 227 (flour mills at Minneapolis).

Thus it appears that a picture is not only useful in making real a particular locality, but may with correlated views set forth extended, even world-wide relations, gathering into one composite picture an essential occupation or a cardinal industry, as seen in many states and many countries.

CHAPTER XII

FIELD WORK FOR OLDER PUPILS

Even a very few excursions vitalize a large amount of classroom work. With practical exercises and exhibits in the classroom, the pupils will come to feel that all, — textbook, discussions, laboratory, and field, — are off the same piece, that they belong to reality.

Hence the teacher should not yield to difficulties such as her own inexperience, or the problem of the needed time periods, in planning an excursion on foot or by street car or automobile to the field for study.

A Stream

Study of a Stream. — A stream is one of the best subjects in physical geography on which to begin. It is mobile, almost a thing of life, changes can be seen in progress, there is vegetation on the banks, there are fish in the waters and changing views at every turn in its course.

Some streams visited will exhibit erosive work in hard rocks, where gorges have been formed, and cliffs rise on one or both banks. Any good textbook of physical geography will suggest to the teacher points of inquiry. What is the part taken by weathering, including ground water percolation, expansion by freezing, off-thrust by growing tree roots, and descent by the force of gravity?

Consider the character of the rock, whether soft or hard, whether cut by planes of bedding and original deposition or by joints.

Other and more mature parts of a stream, often the only parts available for the excursion, may show erosive action upon loose earth materials only, as in excavations made in meander curves, in banks of glacial material, or in removing slices of flood plains whose materials have been more recently deposited.

The erosive effects of water action should be observed as seen in the change of form and size of stones as they are carried farther downstream. They are more and more rounded, and river bowlders and smaller stones are often split open by water and frost action. Inquiry should be made as to the fate of the rock flour produced by this grinding.

Much interest may be aroused by comparing the low and high water stages of a stream. The village stream may be seen at high water as in April, and possibly again at low water, as in September or October, or during other months, depending upon the dates of rainy and dry seasons in various parts of the country.

This aspect of streams may well lead to inquiry about the rainfall of the region, both total and seasonal. Literature giving the average rainfall for each month could be obtained by a request made to the nearest weather bureau office.

Floods. — If floods occur which are sometimes destructive, which enter streets, fill cellars, flood fields and

sweep away fences, crops, or buildings, much of profitable human interest can be aroused by observation, by inquiry of the older residents, and by referring to local history, where floods have been especially great, destructive, and memorable.

The aspects and results of stream work are capable of indefinite expansion in their study, leading out into all sorts of human and industrial relations.

Water Power. — If fall is concentrated, as in rapids and water falls, we have not only the physical causes of such features for inquiry, but the utilization of water power for mills on the ground or for hydroelectric transmission. If the mill or the more or less distant town is not at once taken into the lesson, reference can be made to it, and when in future a visit is made to the factory, or the town in question is referred to in the class, the groundwork of interest is already broadly and solidly laid.

In the study of the stream, the carriage of materials, by swifter and gentler currents, depending on local gradient and seasonal changes of volume, offers a variety of interesting observations and queries.

Alluvial Soils. — If there are flood plains, they become full of meaning in the study of soils, farms, and crops, and may well be compared as to surface, soils, and uses, with the meadows, pastures, grain fields, and wood lots of the adjoining hills.

If there are alluvial terraces, they will arouse interest as remnants of older flood plains, and will carry the mind

of the pupil to earlier stages of valley-making and to the progressive deepening of the valley.

The place of the stream in domestic or town water-supply may be another subject for inquiry, and if the volume be great and the gradient low, and the stream is employed for navigation, then world-wide relations may be available for study.

Specific instructions cannot be given, for as it well appears above, the teacher must use the conditions at hand, and a single stream at its different points may offer material for several excursions.

Deltas. — In many situations a delta affords a keenly interesting field study. We may expect to find conditions for such study wherever a stream enters a lake or a mill pond. The delta may reveal itself as a swamp at the head of lake or pond, or as a "point" built into the border of the lake. At low water, some of the latest delta deposits may be seen and studied, and, by wading or sounding, the under-water parts of a delta may be emphasized in the pupil's mind. The roadside pool, whose waters quickly soak away and disappear by evaporation, may show a delta in the completest manner, as regards the processes of deposition and the shape of its surface.

Ground water, wells, springs, and landslips are subjects that are never far away, or at least are readily suggested, when stream study is in hand.

It has been thought best here to give a rather full group of hints concerning the stream as a subject for

field excursions, allowing it to serve as a suggestion for full studies that may be made of other field subjects. Space does not suffice to expand various subjects of similar importance and suggestiveness.

Other Subjects

Lakes. — Any lake is a large subject, if we find out about the origin of its basin, the springs and streams which feed it, its outlet, its beaches and shore cliffs, its winter and summer condition, its uses for recreation, its function as a reservoir for domestic and municipal supply, or for a power stream. If the lake be large it may have important climatic and agricultural effects, and being large or small, it may afford interesting additions to food supply.

Glaciation. — Similar full studies may be made of glacial land forms, and of the structure and character of glacial deposits, referring back to their origin and forward to their results, in hill forms, marshes and plains, and in the soils, crops, building materials, and other direct or remote consequences of the glacial invasion.

It cannot be too much emphasized that the teacher must not undertake a full program at the outset, or be discouraged by lack of personal familiarity with the problems involved. Let the teacher without hesitation take a single field subject, the one most available. This will in many cases be the stream, in some situations a lake, in others a quarry, in others a hill with its soils, rain gullies, rock ledges, and its more or less wide views.

In any event even a half success is a triumph and will lead to experience and efficiency. Then the work will be expanded in confidence, as opportunity permits.

In rural situations, and indeed wherever transportation conveniences make it possible to take the class into the country, the study of soils makes a useful field inquiry.

Soils. — Emphasize the fact that all soils are produced directly or indirectly through the breaking down of rocks and the minerals which compose rocks. The query form may be given to the subject and thus we have a fruitful problem ready to our hand. What is the origin of soils? What are the leading varieties of soil? How do soils vary with the agents by which they are formed, and with the land forms which they cover and of which they form a part? What products are favored by certain types of soil, and how do these products influence the life of a region? Such questions may be almost indefinitely multiplied according to opportunity and developing interest.

Origin of soils. If the region has been glaciated the loose materials overlying the bed rock will show coarse and fine materials in various mixtures. The crushing and removal of rock materials by mechanical means will readily be brought out. Some soils will be clayey but full of larger and smaller stones, with bowlders and cobble stones on the surface. Some areas will be sandy, and the subsoils will be stratified, thus indicating the agency of water in their earlier removal and deposition. Some will be fine and almost wholly of clayey materials or

consistency, pointing to their origin in lakes or the slack parts of streams.

Outside of glacial regions the rocks break down by frosts, by solution through the presence of water, and by a variety of chemical changes. The soils now existing are in many places the less soluble parts of great masses of rocks that have now disappeared, the bulk of the materials having gone down the valleys or even out upon sea or lake bottoms. These are the so-called *residual* soils and are often of a reddish color or yellowish. They are common, for example, in many parts of the South.

Inquiry as to the differences between soils and subsoils. These differences will pertain to color, fineness, and to structure in general. Seek exposed sections, as in cellar excavations, quarry stripping, sand banks, and along the edges of cliffs and in gullies and highway or railway cuts.

Consider the influence of vegetation, the penetrating roots, the dark humus, or products of plant decomposition. This distinguishes the true soil layer which in many situations was once like the material that now lies below it.

Make the distinction of light and heavy soils and bring out the meaning of clays, sands, and mixtures forming heavier and lighter loams.

Study the thickness and composition of soils, in relation to land forms, as on hill tops, on steep slopes, near the bases of hills, on flood plains, and on broad prairies. Bring out the existence of a series from light and thin

soils to the thick accumulations of almost pure muck or peaty soils in swamps.

Make inquiry as to the capacity of the several soils for holding moisture. This may be tested a short time after soaking rains have occurred. What inferences may be drawn as to appropriate times for working the various types of soil? What crops in your own region are grown on the various upland and lowland soils?

A visit to an intelligent farmer is most profitable in seeking good answers to the above questions.

Many counties in the United States have been studied by the U. S. Bureau of Soils, and reports and maps have been prepared. The authors of these reports have studied the history of farming in the region and give much interesting material designed to aid farmers in cropping their fields to the best advantage. Inquire of the Bureau of Soils, Washington, D. C., as to whether your region has been studied and how the report, if ready, may be obtained.

The need and local practice of drainage affords another interesting inquiry. The crops lead out toward transportation, markets, and world relations, to any degree that time permits.

Only samples of possible excursions have here been suggested or outlined. Visits to local industries have been suggested in an earlier chapter of this manual, on pages 9–10, 13–24. Similar excursions, more maturely treated, are equally practicable and useful for the higher grades.

Conduct of Excursions

The administration of excursions must be left to the good sense and invention of the teacher. The approval of parents is essential and the utmost care must be taken for safety, especially in connection with machinery, transportation, water, cliffs, and all foreseeable dangers. It is evident that small parties are best. To secure time is difficult, and it cannot be too strongly urged that a few excursions or even one or two are far better than none at all. The topographic maps made by the Geological Survey are a valuable aid in planning excursions; if the sheets for the vicinity of the school have been published, they can be obtained at small cost, from the Geological Survey, Washington, D. C. To the discerning teacher, resources of surprising value may be within an easy walk of the schoolroom.

CHAPTER XIII

GEOGRAPHY AS A SOCIAL SCIENCE

Every subject selected for school study is now strongly pressed to make its contribution toward making the child or the youth into a good unit of human society. This is no new aim of education, but the efficiency of the several branches of study in this regard is under challenge as never before. The young child is an excessive individualist and gets his first training in social conduct in the home. If the home discipline be at fault the greater is the burden thrown on the teacher, for the school, with the neighborhood and the church, must give the child its first introduction to larger circles and teach him how he lives and how he ought to live with all people and in all kinds of wide-sweeping relations.

Geography and History. — Geography and history are two subjects in elementary instruction which most immediately and naturally depict and explain the structure of society. The geographic pictures and the history stories of the early grades interlock with each other, and the two themes are never very far apart, if a high standard of teaching is maintained.

Any community with its surrounding and tributary farms and forests is an exhibition in geography. To this understanding no better introduction exists than for the

teacher to show, or get the children to find out, how the community group came to be what it is. How the land looked before anybody came, why some one came to the particular spot, why others came, and by what roads and trails, how the forest was cleared or the prairie or desert made fruitful, how daily needs have been met and tastes gratified, — all this is both history and geography, and in this body of pleasant discipline, the child comes to understand local human relations and goes far toward comprehending all the ordinary bonds that tie individuals, communities, and larger groups to each other.

Community Life. — It is not too much to say that geography is the main source of early information about community life and about the wider circles of life that lie outside of it. It is thus obvious that the study of how men live and work, sometimes called home geography, offers opportunity for progress in the socialization which educational ideals now demand.

Practically all the arrangements with which local geography deals are shared by all the members of the community. They are supported by general taxation and controlled by popular suffrage, and they minister to the needs of all. The school is the immediate example, and in the public school the child probably knows that property owners without children are equally taxed to support the school. One school is in relation to the other schools of town and county, and there are to the child ample and sometimes painful evidences that a remote authority reaches down to him from the capital of his

state. If this be not geography it is securely tied up with geography in the expansion of the social horizon of the learner.

Public Utilities. — The child is taught that well water could not be had in a great city and that if available it would be destructive to health. City mains, more or less remote reservoirs, supplies in Catskill watersheds, New England hills and lakes, Lake Michigan, Lake Erie, or some mountain stream,—all of these details complete the picture of men, at great expense, working with each other to meet one of the needs of life.

The evolution of good roads from Indian trails is a captivating theme, leading from the wild hunter to the immigrant, the Conestoga wagon, the prairie schooner, and the automobile. When the reasons for the road are drawn out, the social lesson has been taught.

The conditions and rules for public safety and health, the larger and larger units of government within which the local unit stands, the telephone, the network of home trade, and the exchange of products between home and the outside world are all lessons of social import, and should become motives for self discipline and neighborly and patriotic cooperation.

Social Study Implicit in Geography. — This social phase of geographic study need not discourage the teacher who has not before thought of this added responsibility in her geography work. She need not shrink from it as from some technical and difficult requirement. By the teacher of human geography no new

method is to be comprehended or employed, for the desired results are involved in all good teaching of the subject. But recognition of this important aim will inevitably color the teaching and add to its efficiency and to its rewards. Another statement of this implicit socializing power in geography is simply this—geography is largely a study of our environment and our environment is chiefly social in its character.

Study of Human Groups. — Geography introduces us to all sorts of human groups having dealings with and dependence upon one another. The farmers, for example, make up special aggregates with community of purpose and differences in method, showing similarities and contrasts according to their history and traditions, and according to the soil and climate of different regions.

The study of transportation brings into view the millions of railroad men and seamen who help in the great process of exchange; and such subjects as iron, copper, gold, and other minerals surely bring into view other social aggregates.

In America, the racial group is of immediate and far-reaching interest. Particularly at this time, in the startling changes following war, in the reconstruction of life in various continents, and amid the pressing and inspiring problems of Americanization, the teacher of geography should find a large and fruitful social service.

Thus the study of racial traits and of tribal and national customs is far removed from a mere appeal to the curiosity of the child, though that curiosity offers

a proper motive and means of approach. The goal is to appreciate the good, sometimes to appraise and condemn the bad, and not seldom to realize that what may seem unpleasant or foolish to us may be agreeable to those of another land, just as some of our customs may seem unpleasant to them. Such study leads to toleration and charity, to sympathy and altruistic deeds. Abhorrence of degradation and moral wrong, the desire to help, and freedom from cheap ridicule of the foreign immigrant, are fruits that the geography teacher may gather in abundance, in developing the character and speech of her pupils. They can no longer grow up indifferent to the menace of the alien or contemptuous of his abilities.

Conservation Problems. — The doctrines and practices of conservation have come to have a large place in geography, and they should receive much emphasis in elementary study, not only for the immediate aims of a thrifty citizenship, but for their social lessons as well. (See Essentials of Geography, Second Book, Management of Soils, Sec. 106; Forests, on their value and preservation, Secs. 93, 136, 224, 253, 403, etc.; see also Secs. 227–233, on irrigation and dry farming.) To save our soils, not to waste our wood, iron, coal, or other minerals, to use these substances with economy, giving all their opportunity to share in their use and preserving the supplies so far as possible to those who come after us — such is conservation, a theme full of social and moral significance. Soils and minerals cannot be replaced

when destroyed and the timber supply can be but slowly and laboriously renewed and maintained. Here are profound lessons against selfishness and strong doctrines of prudence and thrift as well.

The social difficulties of the past and of the present arise mainly from selfish or dishonest use of the resources of the earth. How man uses these and how he should use them, is indeed, it might be said, the central theme in geography, which is both a physical and a social science.

CHAPTER XIV

MINIMUM ESSENTIALS

Place Geography. — A certain irreducible amount of place geography should be gained in an elementary study. We are not to be frightened by the cry that location geography is solely of the memory and out of date.

A limited framework of location is invaluable and essential for proper understanding of causal relations. Interest in a new fact or relationship is assured if we already know where is located, the city, the river, or the country to which the fact or relation belongs.

This principle of interest tied to a fact of location applies not only to later study of geography in the school, but to the daily and involuntary increment of geographical knowledge that goes on throughout the life of the reading and thinking man or woman.

No educational disgrace, or charge of antiquated procedure belongs to a certain amount of sheer map searching and memory work. This is especially true of the expressive maps of the present better texts which afford effective displays of three dimensions. The writers of these lines know by long remembered experience that some children at least have found charm and ineffaceable impressions in the conning of the map for location.

The lack of training in location is now conspicuous in many students in our high schools and colleges, and in many older people of a considerable degree of general intelligence. It is found altogether useful to prescribe a minimum of location geography to college classes in regional geography. Few pupils in that stage of training could, offhand, properly locate a full dozen of the more important cities of Europe. The lettering of an outline map with selected physical and human features is a highly valuable preliminary to the causal study of the facts of racial, historical, and commercial geography. Even more valuable is the achievement, on the part of the pupil, of ability to sketch from memory simple outline maps and place upon them the more important names.

The "map studies" in the Essentials are not to be slavishly used. They may be employed in an introductory way at the discretion of the teacher and a return to them may be made by way of testing and review.

All study, whether by problems, topics, or other methods, should keep location in mind that in so far as possible the place geography may be fixed incidentally to the development of principles and as a part of the regional picture or the industrial and commercial network. This means great saving of labor and a large degree of freedom from arbitrary memory work. Thus one studying wheat as a world problem would with slight effort in the locational direction come out with fixed ideas of the position of the central wheat-growing

plains of North America and the wheat areas of Argentina, Russia, and other lands; with definite placing of Winnipeg, Minneapolis, Chicago, Duluth, New York, Buenos Aires, Rosario, and Budapest, and a certain clear tracing of several trunk routes of the world's lands and seas.

In such rational or large topical treatment, place emphasis can now and then be thrown in without check to movement or interest.

Minimum Place Essentials. — Lists of minimum place essentials will vary with individual judgment and should be flexibly employed. To illustrate the diversity of choice and need in this field, we may take as not too bulky, minimum suggestions for Asia. The following list of forty-nine names (spelled here as in the Essentials) is made by a British teacher: Asia, Arabia, Mekka, Aden, Red Sea, Asia Minor, Palestine, Jerusalem, Damascus, Mesopotamia, Euphrates, Tigris, Bagdad, Persia, Afghanistan, Siberia, China, Peking, Canton, Shanghai, Yangtze, Hongkong, Japan, Tokyo, Yokohama, Malay Peninsula, Borneo, Java, Straits Settlements, Singapore, India, Bombay, Calcutta, Delhi, Madras, Ceylon, Colombo, Ganges, Bengal, Punjab, Burma, Rangoon, Himalayas, Siam, Anam, Tibet, Pacific Ocean, Indian Ocean, Persian Gulf. Good as this list is, it is possibly too large for an American elementary class, however appropriate it is to a class in the center of the British Empire, justifying a dozen names for India alone.

Turn from the above to a list adopted for a Detroit course of study in a recent year. The names for Asia (spelled here as in the Essentials) are: Asia, Pacific Ocean, Indian Ocean, Suez Canal, Red Sea, East Indies, Japan, China, India, Siberia, Caspian Sea, Dead Sea, Himalaya Mts., Mt. Everest, Peking, Bombay, Calcutta, Tokyo, Yokohama, Hongkong, Vladivostok, Jerusalem, Yangtze River, Hwang River, Ganges River, Euphrates River, twenty-six in all. This seems appropriate for children so much more remote both in distance and in relations from Asia than are the geography pupils of the British Islands. It might be well to add Palestine to the Detroit list.

Some lists much longer than either of these have been prepared, but it may well be questioned whether they would not favor mechanical teaching and consume time which should be given to more serious matters of cause and relationship.

References. — Several working lists are given in the "Journal of Geography," as follows: What facts shall we teach? Vol. 17, Nov., 1918; The determination of minimum essentials in elementary geography, Vol. 14, Dec., 1915; Geography in [Detroit] elementary schools, Vol. 14, Jan., 1916, especially pp. 148–150; Economic geography, its growth and possibilities, Vol. 14, Apr., 1916; The minimum requirement, Vol. 13, Oct., 1914; A recommended list of essentials in place geography, Vol. 15, Dec., 1916; The problem of place geography, Vol. 12, June, 1914. See also titles in "List of references

on educational tests and measurements," Bureau of Education, Library Leaflet No. 2, Apr., 1919.

Cities of United States. — The list of essential names for the United States or for North America would be much greater than for Asia. For detailed suggestions, the references given above may be consulted. It seems clear that a boy or girl in the United States should locate all cities of the first order, say above a quarter of a million inhabitants. Smaller cities may also come into this first list because of location or for special reasons. Salt Lake City is in point as the important center in the long stretch between Denver and the Pacific Coast. Duluth is another example for obvious reasons. Des Moines may be named, not because it is the capital, but because it is the chief city of Iowa. Similar is the case with Atlanta, Omaha, Memphis, Nashville, San Antonio, Galveston, and Richmond.

Other cities of lesser population will be learned incidentally in connection with industries. Examples are: Birmingham and iron, Scranton and coal, Paterson and silk, Lowell or Fall River and textiles, Brockton or Lynn and shoes, Gloversville and gloves, Butte or Joplin and mining. Spokane is comparable to Salt Lake City in situation and importance. Several cities have wide repute and an importance disproportioned to their population by reason of their being seats of great schools. We may name in this group, Cambridge, New Haven, Ithaca, Ann Arbor, Madison, Urbana, Berkeley, and Palo Alto.

Places of the Home Regions. — It hardly need be added that the essential list grows in detail for one's own state and the bordering states. Thus the New York pupil should be able to locate Erie, Harrisburg, Burlington, Springfield, and Hartford. The Ohio pupil must not miss Erie, Wheeling, Covington, or Fort Wayne. The teacher can readily determine these questions of local emphasis.

Other Names. — The principles thus exhibited in the study of city location may be applied to rivers, bodies of water, mountains, and the various scenic features. Under the last head, we may count Niagara, the Grand Canyon, Yosemite, the Big Trees, and the Yellowstone as essentials. No protest could arise if Mt. Rainier, Crater Lake, Pikes Peak, Glacier National Park, or the White Mountains be added to the list, while a multitude of places of beauty and grandeur should come within the horizon of more local teaching. Let the same principles be applied in teaching the crops, mining, quarrying, fishing, and the manufacturing industries.

More and more it appears that in rational teaching, the place-fixing will be incidental, and for that reason effective. It is, however, safe and desirable to gather up the knowledge thus gained, and check deficiencies by brief and frequent short drills and tests, so that the map picture becomes indelibly fixed in the mind.

Major Topics on United States. — In addition to such closely local and sharply delimited features as cities and

rivers, the great units of relief should be subject to enough review to make sure of definite conceptions of continental surfaces and of the physiographic regions of our own country. The Fall Line, the difference between the Coastal Plain and the Piedmont, or between the Appalachian Mountain belt and the Appalachian Plateau, the change from Prairie to Great Plain, and the Plateau and Mountain units of the West,—these are good subjects for rapid but searching reviews and tests.

In the discussion of minimum essentials, location geography, because of the specific and limited concepts involved, has held a place relatively too large. What a pupil should know on emerging from the grades is vastly larger, though less tangible, than location. The larger and more complex units of geography have here to be considered.

Among these are the staple products of one's own country and of the world. In selecting these for testing it is safe to follow the emphasis of good textbooks. Taking the United States, no one would fail to choose among direct and indirect products of the soil, wheat, corn, dairy products, cotton, tobacco, and lumber. The leading mineral products would include iron, coal, copper, gold, and silver. Manufactures would embrace the leading textiles, cotton and wool, leather, the main meat and cereal preparations, sugar, rubber, iron and steel products, and some of the leading uses of petroleum.

In all the products of soil and factory, the main result is not local or statistical, but rational and explanatory.

The factors of soil and climatic adaptation, the combination of power, raw materials, skilled labor, and the market, especially as conditioned by transportation,— these are the factors which, in a simple way, the boy or girl should be able to interpret.

The conditions of town and city location and development, and the distribution of population in general, will be constantly encountered in the course of the study, and should breed the habit of geographic interpretation.

It thus becomes clear that tests in dynamic and rational geography from the point of view of minimum attainment cannot be closely standardized and must be stated in the most general terms. Interest and the understanding and application of important principles must take the place of close prescription. It is plain that many tests used in our schools and by overseeing state authorities still balance too heavily on the side of bare fact, as over against interpretation and rational explanation.

Summary. — Perhaps no better summary of the ideal results of the elementary study of geography has been given than the following, quoted from a report prepared for the Boston Department of Educational Investigation and Measurement.

"As a result of the study of geography in the elementary school the pupil should gain:

"1. An abiding interest in the different peoples of the world, their industries, their achievements, and their relations to ourselves.

"2. A mastery of geographic facts and principles sufficient to enable him to explain:

(a) The growth of the leading cities of a region.

(b) The development of important industries.

(c) The dependence of one part of the world upon another.

"3. A breadth of mind which will lead to a sympathetic understanding of races and nations other than his own.

"4. A working knowledge of the subject by a thorough training in the use of maps, texts, and reference books so that he can work out new problems independently.

"In short, geography should help the pupil to interpret his environment, which in the case of civilized man reaches out to all parts of the world."

CHAPTER XV

BOOKS FOR TEACHERS

From what has already been said it is evident that the teaching of geography to children, and teaching it well, need not be a task and that such difficulties as arise may be overcome. It is true of course that the teacher must know something of the subject, much more indeed than she will ever have time or reason to teach to children in the grades. But such knowledge is not too difficult to acquire.

The mere fact that most teachers have had a longer experience than those they are expected to teach is an obvious advantage. In these days everyone travels more or less and the traveling teacher is constantly adding to her knowledge of geography. Every journey for the teacher of geography becomes consciously or unconsciously a geographical excursion.

Nowadays, also, teachers are compelled by certificating authorities to prepare for their work. This preparation usually includes some advanced study of the subject matter as well as of the methods of teaching the various subjects in the curriculum of the school for which the certificate is issued.

Use of Reference Works. — Good teachers early acquire the reading habit. They learn how to use an

index, a dictionary, an encyclopedia, an atlas, or other works of reference, and they learn how to get the needed information from books. With such a teacher the preparation of a lesson may mean the consultation of many books, each of which will be made to yield some part of the desired information and all this must be done without the waste of time necessary to read any one book or article entire.

Most school authorities, recognizing the need of works of reference, for both teachers and pupils, have provided them in generous measure. In some states a minimum equipment is specified by law and the school authorities are required to see that it is provided. A considerable part of this equipment is for use in the teaching of geography.

Facts of Geography Constantly Changing. — The teacher of geography, however, cannot mark time. Each year the lessons must be prepared anew. Changes in industrial conditions, such as the building of a new railroad and the opening of a new region to settlement, or the exhaustion of mines, petroleum fields, and natural gas wells, or the starting up of new industries, or the using of old lands for new purposes, as well as a dozen other reasons, may serve to make this preparation necessary. Changes in political boundaries due to war come less frequently, but when they come they should be shown on the maps and the extent and character of the changes commented upon. The authors and publishers of text and reference books bring them up to

date as rapidly as new editions permit and the teacher cannot afford to lag behind.

The Teacher's Equipment. — Some teachers will travel more than others, some will have had an academic or professional training that others could not get, and some will live where many books are available and will have the leisure to read them while others either lack the books or have but limited time for reading. Those who enjoy the greater advantages and make use of them will, in the nature of things, be better equipped as teachers.

Even lacking the advantages of extensive travel, advanced training, and great libraries, no teacher who cares for the subject need worry about succeeding as a teacher of geography. Field study on the home region will help such a teacher to interpret physical features and processes and to understand their influence upon man and his industries. A few well selected books if thoroughly mastered will give the teacher a fair command of the subject.

Below is given a short list of books, periodicals, and pamphlets which the teacher of geography will find of value.

General

Government Publications. — Among the publications of the United States government there are many in agriculture, commerce, fishing, forestry, geology, mining, and other scientific subjects. Many of them the

teacher of geography will find of the highest interest and value. These publications are sold by the Superintendent of Documents, Government Printing Office, Washington, D. C. The prices charged cover only the cost of paper and printing, but payment must be made in advance by money order, express order, or New York draft. A limited number of copies of some documents are given to Senators and Congressmen for free distribution and an appeal to them for such documents for school use will usually be honored if any still remain available.

The Superintendent of Documents issues Price Lists of Government Publications, which will be sent free upon application. Each of the following lists will be found to contain the titles of many publications of value to a student or teacher of geography.

No. 15 U. S. Geological Survey
16 Farmers' Bulletins and Yearbooks
20 Public Domain
21 Fishes of the United States
25 Land and Water Transportation
32 Noncontiguous Territory
35 Geography and Explorations
36 Government Periodicals
38 Animal Industry
42 Agricultural Experimentation
43 Forest Service
44 Plant Life
45 Public Roads Office
46 Soils and Fertilizers

48 Weather Bureau Publications
53 Maps
58 Mines and Mining
59 Interstate Commerce Commission Publications
60 Alaska Territory
61 Panama Canal and the Canal Zone
62 Commerce and Manufactures

The publications of the United States Geological Survey include, in addition to reports, monographs, bulletins, and professional papers, the topographic maps described and illustrated in Essentials of Geography, Second Book, pp. 29–31, Figures 51–56. The "Yearbook" of the Department of Agriculture always contains timely articles on agricultural subjects and the latest available agricultural statistics for the United States and the world. Among the publications of the Weather Bureau are the daily weather maps described in the Essentials of Geography, Second Book, pp. 44–46. An invaluable book for the teacher of geography is the "Statistical Abstract of the United States," published annually by the Bureau of Foreign and Domestic Commerce.

Atlases. — Among the more important atlases the following should be mentioned: "The Century Atlas" (Century); Andree's "Hand Atlas" (Velhagen and Klasing, Leipzig); Stieler's "Hand Atlas of Modern Geography" (Justus Perthes, Gotha); Bartholomew's "Atlas of Meteorology" (Royal Geographical Society,

Edinburgh); Bartholomew's "Atlas of the World's Commerce" (Newnes, London); Philip's "Chamber of Commerce Atlas" (Philip and Son, London); V. C. Finch and O. E. Baker's "Geography of the World's Agriculture" (U. S. Dept. of Agriculture.)

The following are students' atlases: J. G. Bartholomew, "School Atlas, Physical and Political" (Oxford Univ. Press); Longmans' "New School Atlas" (Longmans, Green and Co.); J. G. Bartholomew, "Atlas of Economic Geography" (Oxford Univ. Press); Philip's "Modern School Atlas of Comparative Geography" (Philip and Son, London).

An annotated list of 40 atlases by J. P. Goode is found in Jour. Geog., Vol. XVI, June, 1918, 395–403.

Works of Reference. — "Cyclopedia of Names" (Century); "Longmans' Gazetteer of the World" (Longmans, Green and Co.); Reclus's "The Earth and Its Inhabitants" (D. Appleton and Co.); "Encyclopedia Britannica" and other standard encyclopedias.

Special

Physiography. — Bowman's "Forest Physiography" (John Wiley and Sons); Dodge's "A Reader in Physical Geography for Beginners" (Longmans, Green and Co.); Dryer's "Physical Geography" and "High School Geography" (American Book Co.); Fairbanks' "Practical Physiography" (Allyn and Bacon); Geikie's "Elementary Lessons in Physical Geography" (Macmillan); Geikie's "Scenery of Scotland" (Macmillan); Geikie's "Moun-

tains, Their Origin, Growth, and Decay" (Van Nostrand Co., London); Gilbert and Brigham's "Introduction to Physical Geography" (D. Appleton & Co.); Gregory, Keller and Bishop's "Physical and Commercial Geography" (Ginn); Salisbury's "Physiography" (Henry Holt); Tarr and Martin's "College Physiography" (Macmillan).

Meteorology.—Davis's "Elementary Meteorology" (Ginn); Dickson's "Climate and Weather" (Williams and Northgate, London); Greeley's "American Weather" (Dodd, Mead and Co.); Hann's "Handbuch der Klimatologie," 3 vols. (Englehorn, Stuttgart); Hann's "Handbook of Climatology," Vol. 1, translated by Ward (Macmillan); Harrington's "About the Weather" (D. Appleton & Co.); Herbertson's "Distribution of Rainfall Over the Land" (Murray, London); Martin's "Our Own .Weather" (Harpers); Moore's "Descriptive Meteorology" (D. Appleton & Co.); Waldo's "Elementary Meteorology" (American Book Co.); Ward's "Climate" (Putnam); Ward's "Practical Exercises in Elementary Meteorology" (Ginn).

Commercial. — Adams' "Commercial Geography," (D. Appleton & Co.); Brigham's "Commercial Geography," (Ginn); Chamberlain's "Geography, Physical, Economic, Regional" (J.B.Lippincott Co.); Chisholm's "Handbook of Commercial Geography" (Longmans, Green & Co.); Dryer's "Elementary Economic Geography" (American Book Co.); McFarlane's "Eco-

nomic Geography" (Macmillan); Robinson's "Commercial Geography" (Rand McNally); Smith's "Industrial and Commercial Geography" (Holt); Whelpley's "The Trade of the World" (Century).

Transportation. — Hill's "Highways of Progress," (Doubleday); Johnson and Huebner's "Railroad Traffic and Rates," 2 vols. (D. Appleton & Co.); McPherson's "Transportation in Europe" (Holt); Raper's "Railway Transportation" (Putnam); Williams' "The Economics of Railway Transport" (Macmillan); Johnson's "Ocean and Inland Water Transportation" (D. Appleton & Co.); Owen's "Ocean Trade and Shipping" (Cambridge Univ. Press); Smith's "The Ocean Carrier" (Putnam); "Shipping World Yearbook" (Shipping World, London).

Agriculture and Soils. — Anderson's "The Farmer of Tomorrow" (Macmillan); Didstoe's "Dry Farming" (Macmillan); King, "Farmers of Forty Centuries" (Mrs. F. H. King, Madison, Wis.); Olin, "American Irrigation Farming" (McClurg); Rowntree's "Land and Labor: Lessons from Belgium" (Macmillan); Hall's "The Soil" (Dutton); Hilgard's "Soils" (Macmillan); Merrill's "Rocks, Rock-Weathering and Soils" (Macmillan); Russell's "The Fertility of the Soil" (Cambridge Univ. Press); Shaler's "The Origin and Nature of Soils" (12th Annual Report U. S. Geological Survey, pt. 1).

Maps and Map Making. — Adams' "A Little Book on Map Projection" (Philip and Son, London); Dwerryhouse's "Geological and Topographical Maps, Their

Interpretation and Use" (Arnold, London); Hinks' "Map Projections" (Cambridge Univ. Press); Hinks' "Maps and Survey" (Cambridge Univ. Press); Morrison's "Maps, Their Uses and Construction," (Stanford, London); Putnam's "Nautical Charts" (John Wiley & Sons); Reeves' "Maps and Map Making" (Royal Geog. Soc., London); Zondervan, "Allgemeine Kartenkunde" (Tuebner, Leipzig).

Methods of Teaching. — Archer, Lewis and Chapman's "The Teaching of Geography in Elementary Schools" (Adam and Charles Black, London); Branom's "The Teaching of Geography" (Ginn); Davis's "Geographical Essays" (Ginn); Dodge and Kirchwey's "The Teaching of Geography in Elementary Schools," (Rand McNally); Fairbanks' "Topical Outlines of Geography," 5 vols. (P. Blakistons Son & Co.); Geikie's "The Teaching of Geography" (Macmillan); Holtz's "Principles and Methods of Teaching Geography" (Macmillan); Lyde's "The Teaching of Geography" (Blackie and Son, London); McMurry's "Special Method in Geography" (Macmillan); Redway's "The New Basis of Geography" (Macmillan); Reynolds' "The Teaching of Geography in Switzerland and North Italy" (Cambridge Univ. Press.); Sutherland's "The Teaching of Geography" (Scott, Foresman & Co.); Wallis's "The Teaching of Geography" (Cambridge Univ. Press.)

History of Geography. — Beazley's "The Dawn of Modern Geography," 3 vols. (Oxford Univ. Press.);

Bunbury's "History of Ancient Geography," 2 vols. (Murray, London); Keltie and Howarth's "History of Geography" (Putnam).

Results of the War.—In making themselves familiar with the results of the World War and the territorial changes resulting therefrom, teachers should have in their possession and carefully study the February, 1921, and the May, 1921, issues of the "National Geographic Magazine" (Washington, D. C.). The first of these deals with European problems and the second with Asiatic problems. In addition the following books will be found very valuable: Bowman's "The New World Problems in Political Geography" (American Geographical Society); Demangeon's "America and the Race for World Dominion" (Doubleday, Page & Co.); Dominian's "Frontiers of Language and Nationality in Europe" (American Geographical Society); Fairgrieve's "Geography and World Power" (Dutton); Huntington's "World Power and Evolution" (Yale Univ. Press); Jastrow's "The War and the Bagdad Railway" (J. B. Lippincott Co.); Levine's "The Resurrected Nations" (Stokes); Lewin's "The Germans in Africa" (Stokes); Lewin's "The German Road to the East" (Geo. H. Doran Co.); Muir's "The Expansion of Europe" (Houghton, Mifflin & Co.); Newbigin's "Geographical Aspects of Balkan Problems" (Putnam); Osborne's "The Upper Silesian Question and Germany's Coal Problem" (Allen & Unwin); Stoddard and Frank's "Stakes of the War" (Century).

Books on Parts of United States. — A few books of regional geography for parts of the United States are here named. "Guide Book of the Western U. S.," Bulletins 611–614 of the U. S. Geol. Survey, as follows: "Part A, The Northern Pacific Route"; "Part B, The Overland Route"; "Part C, The Santa Fe Route"; "Part D, The Shasta Route and Coast Line"; all with many maps and views.

G. E. Condra, "Geography of Nebraska" (Univ. Pub. Co., Lincoln, Neb.); C. W. Hall, "The Geography and Geology of Minnesota" (H. W. Wilson Co., Minneapolis); Douglas C. Ridgeley, "The Geography of Illinois" (Univ. of Chicago Press); F. W. Simonds, "Geography of Texas" (Ginn); D. E. Willard, "The Story of the Prairies" (Rand McNally); A. E. Parkins, "Historical Geography of Detroit" (Univ. of Chicago Libraries, Chicago, and Mich. Hist. Com., Lansing).

Periodicals. — "Geographical Journal," London; "Geographical Review," formerly "Bulletin of the American Geographical Society," New York; "Journal of Geography," the highly valuable organ of the National Council of Geography Teachers, published through A. J. Nystrom and Co., Chicago; "National Geographic Magazine," Washington, D. C.

Notes from Magazine Articles.—In most of the better magazines there are from time to time interesting and valuable articles on geographic subjects. When bound volumes of the magazines are available it will usually be sufficient for the teacher to keep

a list of the articles,—a card catalogue is best. If the magazine is not otherwise valuable, the article itself may be taken out, put into an envelope, and kept for later use. When, however, the article is one to which the teacher cannot easily refer, and of which she cannot get a copy, the more important facts may be kept as notes on small cards and filed for future reference.

It is well for a teacher to cultivate the note-taking habit. When one is reading, a package of 3 x 5 cards should be kept at hand and references noted on these to book, chapter, and page. These cards should then be filed under the proper heading or headings for later use.

Other Book Lists. — Several bibliographic lists may also be mentioned. Short list, especially for textile industries, Jour. Geog., Vol. XIX, Apr., 1920, 157. Carefully selected general list for Grades 7–9, in Teacher's Manual of Geography, 52-54, Elementary Education Service, State House, Boston, Mass. Extended bibliography in Jour. Geog., XVI, June, 1918, 361–384. See also lists in Jour. Geog., XIV, Jan., 1916, 136–143; Jour. Geog. XII, Oct., 1913, 60–62; Jour. Geog. XII, Jan., 1914, 129–151; Excellent list of materials free or at small cost, in Jour. Geog., XV, May, 1917, 285–318. Several of the above named volumes on the Teaching of Geography have good lists of reference material. An extended list is found in a volume of H. R. Mill, "Hints to Teachers and Students on the choice of geographical books for reference and reading," Longmans, Green and Co., 142 pp.

Other Works. — Brigham's "Geographic Influences in American History" (Ginn); Brunhes' "Human Geography" (Rand McNally); Herbertson's "Man and his Work" (Adam and Charles Black, London); Lyddeker, "The Living Races of Mankind" (Hutchinson and Co.); Huntington and Cushing, "Principles of Human Geography" (John Wiley and Sons); Ratzel's "The History of Mankind," 3 vols. (Macmillan); Semple's "American History and its Geographic Conditions" (Houghton, Mifflin & Co.); Semple's "The Influences of Geographic Environment" (Holt).

Additional references are given in the list of "Books for Reference Reading," Essentials of Geography, Book Two, page 411, and this list should be consulted for important books dealing with the several continents and the leading countries.